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Address.

SECTION ON STOMATOLOGY*

CHAIRMAN'S ADDRESS.

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For the second time it is my privilege to give you greeting in the time-honored form of the Chairman's address. Properly you have the right to expect of me a résumé of the various evidences of progress in those directions in which our interests are particularly centered. A pursuance of this idea leads directly to the pages of the journals published during the year. It is but natural that much of the matter which they contain should prove, on a close investigation, to be merely the old coats that various subjects have long been wearing, turned the other way, fashioned over into a more modern form, perhaps edged and trimmed with something new; yet there have been new facts developed, or at least a new growth started, on old lines of development, in a few subjects, which bring them rightfully to your notice at this time, notable among these are the experiments of Dr. J. Leon Williams, whose demonstrations of his study have cast a new light on the etiology of dental caries, and are bound to have an extended influence, directly and indirectly, on the methods employed in the preservation of tooth structure; as are also his studies of the pericementum, particularly those which by the aid of the microscope have shown the collateral nerve-supply from which we positively find that nerve-filaments make their way to the pulp, not only through the apical foramen, but through the pericementum at other portions of the root surface. It is the possible clinical importance of this interesting demonstration to which I feel that I must call your attention, bearing to me as it does a more than usual import through the study of the various phenomena of neutral disturbances, which have made up the larger portion of my practical work for some time past.

Last year, and also the year before, in papers before this Section, and in one before the Section on Neurology, I tried to make clear the fact that by reason of the action of the jaws through some central disturbance affecting the muscles of mastication, by mal-occlusion, habit or otherwise, the constant irritation of the membranes around the roots frequently caused reflex pain in the various points of distribution of the fifth nerve; spasmodic and other affections frequently, also any symptoms of general neurasthenia, which have hitherto usually been ascribed to eye strain, womb affection, or some of the other better known forms of nerve irritation. That such conditions might result from pulpitis or direct irritation, transmitted to the nerve trunk, through the apical foramen, was well understood, but such symptoms were not commonly accepted as being likely to arise from the pericementum alone, yet from the slides which Dr. Williams has shown, the facility with which they might occur in this manner is easily comprehended. The importance of the work, and the diagnostic significance of the facts made, I am sure will become more and more apparent to others as it has to me during the investigation of the past year which by a long list of clinical evidences has added to my already strong conviction that the frequency and severity of the symptoms in nervous affections of the face, jaws, and neck are nearly always, if not induced, at least aggravated by the constant grinding of the teeth, or extreme pressure of the jaws during sleep or moments of abstraction, and with paroxysms of pain; usually, however, without consciousness of the fact by the individual at the moment. The symptomatology and diagnostic differentation of pains of the head and face are most unreliably laid down in text-books and medical literature, therefore any step toward definite etiologic distinction is worthy of our most careful consideration.

The second subject brings to mind the fact that there has begun, and is now, in the somewhat painful and even uncertain act of being born, a new state of things with regard to the higher preliminary requirements for the admission of students to our dental colleges; also an effort to arouse interest in the unification of the laws governing the practice of dentistry throughout each of the different states, so that a license to practice granted by one board shall be everywhere accepted by other boards, and this too without lowering the standard or in any way jeopardizing the good work which even the strictest among them may be endeavoring to accomplish. This has been brought forward by Dr. E. C. Kirk in a valuable paper and editorial. It is unfortunate that at the present time there appears to be a danger of a clashing of interests between the National Board of Dental Examiners and the National Association of Dental Faculties, the two bodies whose interests should be and doubtless are centered in raising the standard of dental education, forces that ought to be in harmony instead of in opposition to each other, or vieing in an endeavor to advance rather than disputing as to the manner of the progress. The dream which many of us have cherished in those moments when our Utopian fancies have held sway over the difficulties that at other times seemed insurmountable, might now be accomplished or at least set well on its way toward fulfilment by a little effort, which might perhaps in a measure help to solve the present differences. By way of a suggestion to this end, the idea is now given to you that, were the two associations named to work together, approximately at least in harmony, as do the upper and lower houses of our Congress, the legislatures and senates in our states, and agree that rules governing college management with regard to preliminary requirements, nature and length of study, require-

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ments for graduation, etc., should be acted on by each, and approved by both before becoming laws properly binding the college membership—and this much accomplished—these two bodies together should select each a certain number yearly from among themselves or outside of the membership, who should be empowered to examine both colleges and students and report jointly to both associations, also to regulate the examination methods and questions of the different boards, so that students graduating under this supervision might be everywhere accepted with merely a nominal examination or none at all, and that a license granted by one board could be accepted with perfect security by every other board, because the character of questions would be uniformly the same for all. Thus we have at once a simple and feasible plan, easily practicable and without the necessary revision of state laws or the passage of a national law, both of which are almost or nearly insurmountable obstacles. The arguments against this plan might be, on the one hand that the National Board of Examiners is a body, the members of which are largely more or less the result of political appointment and therefore objectionable on the ground of politics and perhaps of unfitness as compared with the members of the association of faculties, who are necessarily trained teachers thoroughly conversant with the needs and practical requirements of college work. Yet out of this very objection grows the particular practicability of the plan because the training and fitness of the college men by action and advice would undoubtedly influence the other body, while on the other hand, and tendency to check advance by reason of the possibility of selfish interests, expressing itself through a fear of the loss of students, would be counterbalanced by council with the examiners' association, and while it must be admitted that the personnel of state boards is often marked by ignorance and unfitness for the duties they are called on to assume, yet it must be remembered that they represent the people and voice the sentiment of the great body of practicing dentists, not enrolled on the faculty lists of colleges whose earnest desire, so far as the best of their number might dictate, would unquestionably be in the direction of an elevated standard, and while individual dishonesty may sometimes be a "bar sinister" upon the escutcheon of a board, yet who can question that the majority of the delegates from each of the states would at least be fair-minded, honest and full of the zeal which every high thinking practitioner should possess? Why not then join hands, those who are fit by reason of experience and whose calling ought to lead them to favor better education with those who have been selected by reason of their inclination in the same direction. Without politics, delay or serious discord, without injury to the interess of any college, board, state, or individual, can be set in motion a systematic co-operation which could give us a higher standard of dental education, the equivalent of uniform legislation. I would suggest that this idea, if you approve it, emanate in some substantial form through co-operative committee, or direct communication to both the National Association of Dental Examiners and National Association of Dental Faculties.

Two years ago, in Philadelphia, in the chairman's address of Dr. Andrews, and again last year in my own at Denver, the idea was brought forth and stress laid on the importance of examination of the mouths of public school children by competent dentists and need of giving instruction as to the proper care and such prophylactic measures as would at least tend to check the vast amount of suffering, sickness and general infection due to the pathogenic organisms of the oral cavity, neglected through the ignorance which prevails on this subject. I feel it my duty to again call your attention to the importance of this subject and to impress on you the need of some active step in a direction which is clearly defined, and directly in the line of the duty which rests on each one of us, much more by reason of our double interests in medicine and dentistry than it does on the dentist alone, who has perhaps less concern with regard to the public health. It is a fact that 50 per cent. of all people, certainly in the large cities, are affected with tuberculosis in some of its many forms. It is also true that the death of one of every seven by this disease is a conservative estimate. We know that affections of the stomach and of the intestinal tract throughout its entire length, are commonly the result of infection from the mouth. We know that the bacillus of diphtheria, the pneumococcus, streptococcus and other pathogenic germs are frequently found in the mouth of healthy persons, that diseases of the eye, ear, nose and throat, anemia, pyemia and septicemia, together with many spasmodic and nervous diseases, are often the result of oral conditions, which, with a little care might easily have been prevented in the beginning. You are too well familiar with these facts to need a rehearsal of them, but what I feel is required this time is, some active definite organization which will begin a systematic undertaking of the promulgation of this idea and the work it contemplates in all of the cities where our influence extends. In no other way can we confer so much benefit on the two professions we represent and on our fellow-men, or reflect such undying credit on ourselves and our Section as by giving this matter the time and consideration it deserves. I would suggest, therefore, that a committee be appointed and empowered to appoint subcommittees in the various cities to ask state local societies to assist and to correspond with the principals of schools urging that the dentists whom this committee might select be allowed, or if necessary, requested, to come to the school buildings and talk to the students on this subject; that whoever undertakes this work be urged to make examinations of the mouths and collect data as far as possible. If all this be done in the name of the Section of Stomatology and the credit resulting be laid to its door, I am sure the reward will be ample.

I have forborne thus far making mention of the value of papers of members of our Section published in current literature, or of additions from individuals among our little band of followers in book form, valuable to dental, medical and general science, choosing rather to refer to contributions from outside our membership, but I cannot, in justice, refrain from calling attention to the fact that the Section of Stomatology has reason to be proud of the scientific results of original investigations that its members have given to the world, there being no other organization of dentists, so far at least as I can learn, whose members have contributed to much scientific matter in the form of books, papers and original work, in proportion to the total membership, as have the members of this Section. This, I believe, should be not only a matter of congratulation, but one of great encouragement as well. It is a matter that makes me feel deeply the honor you have twice conferred on me, an honor that, optimistic as I am of the future of this Section, in which our hearts are bound together, I feel and know will be of ever-increasing importance in the eyes of the scientific world.

We stand to-day at a portal
Once locked with an unknown bar;

But now a ray of sunshine
Steals in, for the door's ajar.

Its wavering light reveals us
Such hidden secrets there,
That the dreams of wildest fancy
Have nothing to compare.

Pried open by force of Science,
To human minds unsealed,
The truths of Nature's text-book
Are one by one revealed.

That which the understanding
Of man but yesterday
Might wholly fail to compass,
To-morrow explains away.

Far into the boundless firmament
The eye extends its range,
While thousands of magnifications
Develop things small, strange.

Our voice's softest accent
Resounds through miles of space;
And far out-stretching metal arms
Touch every distant place.

The storm has lost its terror,
We hold its fire a slave;
To warm, to light, or fetch and carry,
Bondsman, our strength to save.

The sea gives up its treasures,
The land its fruit and gold;
The beauties of Art and Nature
Are placed in our hands to hold.

'Tis something, at least, that one should be
A soldier in this great fight,
And under the banner of Science
Do battle to set things right.

Though each be only an atom,
A tiny molecular part,
Of the Universe where truth is sought
In letters, and Science and Art.

Yet, how may a man do better
Than strive as best he can
To ease his fellow's suffering,
Or lengthen life's brief span?

Original Articles.

URIC ACID THEORIES.

A CRITICAL REVIEW, AND SOME ORIGINAL INVESTIGATIONS.

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MOTTO: *"Je n' enseigne pas, je raconte."*
—*Montaigne.*

This paper constitutes a preliminary report and incorporates the results of a series of investigations made with a view of corroborating experimentally the theoretic views advanced. The details of laboratory technic, of the many quantitative analyses of blood and urine that have been made, the description of animal experiments are reserved for future publication; reports of cases are also withheld for the present until more material of this kind shall have been gathered.* I am aware of these limitations, still my report may be given at this early date, "or else, to-morrow a stranger will say with masterly good sense precisely what we have thought and felt all the time and we shall be forced to take with shame our own opinion from another."

As existing uric acid theories are full of inconsistencies and absurdities, it seems necessary, before erecting a new theoretic structure, to remove, by a severely critical review, the debris of exploded theory that encumbers the foundation of solidly demonstrated facts.

All investigators seem to agree that somewhere and somehow in the body uric acid enters the circulation in excess and gives rise to the protean mass of symptoms we group under the name of uric acid lesions; they begin with the mass of functional disorders, the "masked" manifestations—headaches, migraine, vertigo, certain forms of eczema and of asthma, uricaria, sciatica and a host of others—and progress in severity to lesions like nephritis uratica and gout, which are accompanied by inflammation and necrosis and lead to destructive tissue-changes.

Two facts stand:

1. Uric acid is found in the blood of gouty subjects during the attack. Garrod[1] made this discovery in 1848; it has been corroborated a thousand times since; there seems to be no doubt, therefore, that gouty blood is comparatively rich in uric acid, whether this is the case during each period of the disease has not been definitely settled. Exact quantitative methods for determining small quantities of uric acid in the blood are wanting, so that, as we shall see later on, the presence of small quantities has evaded detection. Further, Garrod[2] himself found uric acid in the blood of cases of chronic lead poisoning and of nephritis; Salomon[3], Haig[4], v. Jaksch[5], in pneumonia, and v. Jaksch[5] in anemia, dyspnea and emphysema; the quantities found in these diseases were as large as those found in gout.

2. Uric acid in the shape of its insoluble salts is found in the concretions of gout, in the joints, the kidneys, in fact in every tissue of the body with the exception of the nervous system, which seems to enjoy an immunity. This has been known since 1797 (Wollaston). So pathognomonic are these uratic deposits for gout that we may say that wherever we find urates in concretions we have gout; but we can not invert this proposition because we certainly see typical cases of gout in which concretions of uric acid do not occur. As against the primary role of uric acid is the peculiar location of these concretions. Virchow[6], in 1884, in a lecture on nephritis uratica—gouty kidney—showed that the inflammatory and necrotic processes were found in a different part of the kidneys and joints than the concretions; in gouty kidney the characteristic kidney changes begin in the cortex, while the uratic deposits are found in the parenchyma; in the joints the inflammation starts from the synovial membranes, while the concretions are found in the cartilages. However violent the inflammation may be, and though it lead to suppuration, uric acid is never found in the exudate. He further calls attention to the great similarity as to distribution and localization that exists between these urate deposits and the manifestly secondary deposits of calcareous material found in different diseases. He arrives at the conclusion that some substance circulating in the blood with an apparently selective affinity for certain membranes prepares a suitable nidus for the deposit of urates.

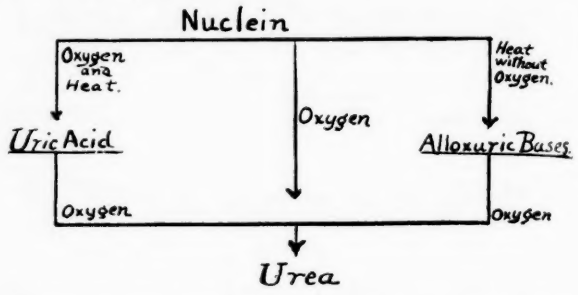
* The treatment advised for uric acid lesions at the end of this paper is deduced from theoretic reasons exclusively; empiric findings are scanty so far. I have, however, a record of twenty-two cases with most positive results. This paper is in the nature of an appeal to clinicians and practitioners more fortunately situated than myself as to clinical material, to try the measures advocated and to furnish me with short reports of their cases and of the therapeutic results observed. I should like at not too far distant a time to be able to publish a report on several hundred cases collated in this manner, together with the laboratory findings I have on record and my own cases. I shall most gratefully receive such reports and gladly give credit, in my publication, to my colleagues who will be kind enough to assist me in this manner.

As against the theory that uric acid is the primary cause of the lesions attributed to its presence in the blood, we have the fact that it is essentially a non-toxic substance; the administration of large doses to a healthy animal or man produces none of the symptoms of acute uremia and the exhibition of small doses for a long time is not followed by any of the disturbances commonly attributed to chronic uric acid poisoning. The excretion of uric acid and its relationship to gout and allied conditions has been exhaustively studied. The results are not uniform and no diagnostic clues are gained from the quantitative determination of the uric acid excreted; besides, a large part of the work done in this direction is essentially fictitious, because the method employed until recently, that of Hintz, is inexact and yields values for uric acid that are too low; but even later analysis made by Ludwig-Salkowski's method discloses very little of value (see below). Thus the evidence in favor of Garrod's old theory is scanty and insufficient.

Within the last decade a series of masterful investigations have been published on the chemical relationship between uric acid and nuclein; they seem destined to throw new light on the subject.

Basing on the fact that in leucemia a great increase in the excretion of uric acid is observed, and surmising an inter-relationship between the great katabolism of leucocytes and the large quantity of uric acid, Horbaczewski[7] attempted the synthesis of uric acid from organic material containing large quantities of leucocytes. He made a mixture of spleen pulp and blood, heated it for several hours at body temperature (37-40 C.) in the presence of air and, in fact, obtained considerable quantities of uric acid. He surmised that the nuclein contained in the nuclei of the leucocytes furnished the material for the uric acid, and when he heated nuclein under the same conditions he succeeded in completely converting it into uric acid. This was a process of oxidation, for he found that if he excluded the air he generated no uric acid, but a peculiar group of substances instead, the so-called nuclein bodies—syn. xanthin bodies, alloxuric bases—which had previously been made from pus, internal organs and yeast nuclein by simple heating in the absence of oxygen (Kossel,[3] Salomon[9]). They are basic substances, readily soluble in water; their chief representatives are xanthin, hypoxanthin, paraxanthin, adenin and guanin. On oxidation, then, nuclein gives uric acid; if oxidation is deficient or no oxygen is present the alloxuric bases are formed instead.**

This discovery overthrows the old doctrine that uric acid is a product of the oxidation of albumin, so to say, an intermediate product between it and urea. It is true we can oxidize uric acid into urea and we can oxidize albumin into urea, but we cannot oxidize albumin into uric acid; it was, therefore, merely an assumption without experimental foundation that uric acid is an oxidation product of albumin. Nuclein, on the other hand, can readily be oxidized into uric acid and further into urea; the alloxuric bodies too can be oxidized into urea, but they can *not* be converted into uric acid by oxidation! The following diagram may illustrate this relationship:



Where in the body this oxidation process occurs is doubtful, whether in the tissues at large, in the liver or in the kidneys. Preponderance of evidence seems to point toward the kidneys, to judge from animal experiments; but conclusions in regard to the human uric acid economy drawn from observations on animals are quite unreliable, because great differences exist in this direction between man and the lower orders of animal creation (Salkowski,[10] Chittenden,[11] Kumawaga,[12] Horbaczewski.[13]

In order to understand the pathology of a disease it is necessary to understand the physiologic function, a perversion of which it represents. The function that is perverted is the nuclein metabolism. If oxygenation is sufficient we have the formation of uric acid; this is the normal process. Its perversion may be twofold, i. e., nuclein metabolism may be excessive or oxygenation may grow deficient; in either case we will have a decrease in the formation of uric acid and a corresponding increase in the formation of the alloxuric bases. We make this perversion responsible for so-called uric acid lesions. We maintain:

1. That uric acid is not the *materies morbi* in uric acid lesions.

2. That uric acid acts pathologically only from its tendency to form concretions.

3. That its formation, far from being a process of autointoxication, is a process of disintoxication.

4. That the decrease in the excretion of uric acid observed in some morbid conditions is not due to retention but to non-formation.

5. That the *materia peccans* in uric acid lesions are the alloxuric bases.

6. That in all so-called uric acid lesions we find an absolute increase over the normal of the *sum* of uric acid and alloxuric bases, and that this finding is of diagnostic value.

That uric acid is a non-toxic substance has already been emphasized, it is furthermore almost insoluble in the tissue juices; its salts are essentially insoluble. Not so the alloxuric bases; they are readily soluble and possess highly toxic properties. Rachford,[14] Filehne,[15] Paschkis and Pál[16] are responsible for the statement that a large variety of nervous phenomena, migraine, increase in the arterial tension and arteriosclerosis, are attributable to xanthin, paraxanthin or hypoxanthin poisoning. As early as 1884 Gaucher[17] discovered that the injection into the body of a healthy animal of small quantities of xanthin and hypoxanthin—both belonging to the group of alloxuric bodies—produces marked changes in the excreting cells of the kidney-parenchyma—néphrite epitheliale—Kolish and Tandler[18] observed the same. My own investigations, recently completed and not yet published, made with a view of corroborating these findings,

** The term alloxuric *bases* is employed for the group of basic, soluble substances mentioned above; the term alloxuric *bodies* includes uric acid. The method employed for their determination is that of Krueger and Wulff (Zeitschrift für Phys. Chemie, vol. 20), viz.: 100 c.c. of urine that has been freed of any albumin it may contain, are heated to boiling, and 10 c.c. of a concentrated solution of sodium-bisulphite and 10 c.c. of a 13 per cent. of copper sulphate added; the mixture is then boiled for about five minutes and allowed to cool. The precipitate that forms is separated from the supernatant fluid by filtration and washed several times with distilled water of 50-60 C., then, while still moist, placed into a flask and the nitrogen it contains determined according to Kjeldahl's method. This gives the total of alloxuric bodies; in another quantity of the urine the uric acid is determined according to Ludwig Salkowski's method; the quantity of alloxuric bases is determined from the difference between the alloxuric bodies and the uric acid. This method seems complicated and tedious, but is exceedingly simple when the solutions are ready and the details of technic are once mastered.

positively demonstrate that both xanthin and hypoxanthin, when injected hypodermically in the strength of a 0.3 to 0.7 per cent. watery solution for a period of several months, produce granular degeneration of the epithelial cells lining the tubuli contorti and a proliferation of the endothelium of the intertubular capillaries. Albumin was invariably found after a period of three weeks. We may say, therefore, that the presence of minute quantities of alloxuric bases in the circulation is capable of producing marked anatomic kidney changes. We are indebted to Levison[19] and others for the knowledge that granular atrophy of the kidney is a constant precursor of gout—the view that it is the result of a chronic form of auto-intoxication is substantiated by the fact that in lead-gout, i. e., in that form of spurious gout which is produced by the administration of small doses of lead for a long-continued time we find this same form of granular atrophy of the kidney, accompanying the systemic and arthritic manifestations (Charcot and Gombault.[20] Coen and Ajutolo[21]). We have compared the kidney changes of chronic lead intoxication with those formed in chronic alloxuric body intoxication; they are identical; and as the kidney changes of gout are identical with those of chronic lead intoxication, we may say that the organic kidney changes observed in uric acid subjects can be produced by alloxuric bases. We can chronicle the fact that uric acid injected into the circulation of healthy animals for a period of over three months produces no kidney changes whatever. To sum up briefly we may say, therefore, that uric acid, is incapable, as far as we know, of producing any of the symptoms of so-called uric acid poisoning when injected into the body of a healthy animal; the alloxuric bases can, on the other hand, firstly produce a series of functional disorders that are similar if not identical with those observed in the "masked" forms of uric acid intoxication, and secondly anatomic changes in the kidneys that are identical with those observed in gout, i. e., the severer forms of chronic uric acid poisoning.

The belief is prevalent that uric acid is never found in normal blood; on the other hand we know that uric acid in appreciable quantities is found in normal urine; the conclusion naturally to be drawn herefrom would be that the kidney cells convert "some substance" that is circulating in the blood into uric acid and excrete it; there are, however, quite a series of arguments against this assumption, and these we will discuss later on; a discrepancy exists somewhere. With a view of clearing up this point I undertook a series of investigations directed toward a determination of the quantity of uric acid in normal blood. In leucemia the above discrepancy seems particularly emphasized as we all know that the urine of leucemia subjects is very rich in uric acid, and that according to Salkowski,[22] Landwehr and Bockendahl,[23] Stadthagen[24] and Salomon,[25] no uric acid is found in the blood. Koerner,[26] on the other hand, when he examined large quantities of leucemic blood, obtained by venesection, discovered considerable quantities of uric acid. This finding, coupled with the fact that the methods employed for the quantitative determination of uric acid in the blood were deficient and gave too low values (see above) and the knowledge that, owing to the great insolubility of uric acid, only very small quantities could at best be expected—the whole excretion during twenty-four hours rarely exceeds 1.2 grams in a normal subject—convinced me of the futility of looking for determinable quantities in a few cubic centimeters and led me to make analysis of larger volumes of blood. I have found uric acid in the blood of twelve normal subjects; in two the blood was taken in bulk by venesection, in the other ten it was obtained from the operating-table. Corpuscles and serum together were examined, not the serum alone; I am at present occupied in analyzing serum and coagulum separately; whatever the result of this latter investigation may be, the fact, in my belief, is established that uric acid is found in normal blood. This makes the presence of uric acid in normal urine self-evident and relieves us of the necessity of hypothetically attributing a special uric-acid forming function to the cells of the kidney parenchyma; a leading argument against the assumption of such a role is the fact that, in no form of Bright's disease do we find a diminution of uric acid in the urine unless severely destructive changes have occurred in the kidneys; if the kidneys were concerned in the manufacture of uric acid, the severe damage they undergo functionally and organically in Bright's disase of all forms would certainly lead to a diminution of the excretion of uric acid. And here is one of the many fundamental fallacies that have been transmitted without question from medical generation to medical generation, namely, that uric acid is diminished or absent from nephritic urine; the statement is simply false, notwithstanding the publications of Bartels,[27] Wagner[28] and Fleischer.[29] Again their method—that of Heintz—was defective; if Ludwig-Salkowski's exact method is employed it will be found that normal values for uric acid will be registered in all but the last stages of Bright's disease. Frerichs[30], Van Ackeren[31] and Stadhagen[32] teach us this; my own analyses, executed in some fifty cases, corroborate their findings.

We quote and translate in a condensed form from V. Noorden, "Pathologie des Stoffwechsels," as follows:

Examinations of the urine for acid in gouty subjects date back only to the time of Garrod; his analyses of the blood and urine showed that a gouty subject as a rule excretes less uric acid than a normal subject, sometimes no uric acid at all is found in the urine. This diminution is especially apparent before the attack, and during the attack later on normal values are re-established. In the blood, on the other hand, the uric acid is increased whenever it is decreased in the urine. This is the basis of Garrod's historic theory of gout; the kidneys of a gouty subject do not excrete the uric acid as rapidly as it is formed; under a great variety of circumstances their faculty of excreting uric acid is generally diminished. Uric acid accumulates in the blood; as soon as the accumulation reaches a certain degree the attack begins; uric acid is deposited in the tissues and is later, by the aid of "inflammation" oxidized away again; the blood is thus purified of uric acid. For a time the formation and excretion of uric acid are balanced until the equilibrium is again disturbed. In chronic irregular gout the excretion of uric acid is permanently reduced. We must say that the painstaking uric acid determinations of Garrod and of his successors can hardly be considered valid to-day, as they were executed by the method of Heintz, which does not indicate an incalculably large part of the uric acid, sometimes none of it at all.

We must therefore, skip all the investigations of Lehmann, etc., (naming half a dozen others) who all corroborate Garrod's findings basing on determinations made according to Heintz and must consider only the more exact investigations of late years—too bad, that the arduous and conscientious labors of so many honest men must be considered valueless owing to their employment of a method the deficiencies of which were only recognized later.

A series of investigations made with Heintz' method even had made Garrod's findings doubtful; thus Bouchard found almost normal values in the time between the attacks and Lecorche almost always found normal values in gouty subjects. To-day (1893) the evidence in favor of abundant uric acid excretion is accumulating. *The figures* given by Ebstein and taken from Sprague's analyses, the figures of E. Pfeiffer and of L. Vogel—*during the attack, between the attacks and in chronic atypic gout—do not differ materially from those found in healthy individuals and in a variety of non-gouty diseases.*

The normal figures for a grown person on ordinary diet are given as from 0.7 to 1.2 gr. pro die: the values for uric acid in the urine of gouty subjects fluctuate within these boundaries.

From our own investigations then, and from the authoritative statements of competent writers, it appears that uric acid is a normal constituent of the blood and that the excretion of uric acid does not deviate from the normal in gouty subjects. If, however, we consider not uric acid alone, as has been done heretofore, but also the alloxuric bases—the interesting relationship of which to uric acid and to nuclein we have studied—typical excretory abnormalities of diagnostic and prognostic value will be found in "uric acid" cases, as follows: We have made a large number of quantitative determinations of the alloxuric bases—alloxuric nitrogen—in the urine of subjects suffering from gout or from other manifestations of the uratic diathesis and in every instance we have found an absolute increase in the excretion of these bodies over the normal; so that if we take the sum of uric acid and of alloxuric bases excreted we always find a typical aberration from the normal in the sense of an increase of this sum.

We are now in possession of the facts that are observed in uric acid cases; a number of old observations have been shown to be erroneous, a number of new ones have been adduced in their place. How, in the light of this new point of view does the normal nuclein economy of the body present itself, and how does a perversion of this function produce "uric acid" lesions? Finally, do the clinical laboratory findings correspond with the findings we should expect if our ideas are correct?

The excretion of uric acid and of alloxuric bases depends, as stated above, on the quantity of nuclein that is converted and on the activity of the oxidation processes. As the leucocytes, according to Horbaczewski and others, furnish the bulk of the nuclein, we may expect to find an increase in the uric acid and alloxuric bases, with an increase of the leucocytes. This is clinically borne out, as may be seen by the following examples: Certain drugs, as quinin, pilocarpin and atropin, that produce leucocytosis; certain infectious diseases that are accompanied by leucocytosis, leucemia in which the increase in leucocytes is excessive, also all produce a marked increase in the excretion of uric acid and of alloxuric bases. After eating we have a digestion leucocytosis and it is accompanied by an increase of the above substances in the urine, and in carcinoma of the stomach, when we have no digestion leucocytosis, this increase is not observed. Spleen extract injected into the circulation of a leucemic subject produces both a leucocytosis and an increase in the alloxuric bases. Examples of this kind might be multiplied. The second factor, the activity of the oxidation processes, clinically yields equally positive results. Wherever we have a decrease in the aerating surfaces of the lungs, as in emphysema, late stages of tuberculosis, etc., as manifested clinically by dyspnea and cyanosis, we have a decrease of the uric acid excretion and a corresponding increase of the alloxuric bases instead; the same applies to deficiencies in the hemoglobin economy and wherever we have cachectic and anemic states with deficient oxygenation we may expect to find a decrease in the excretion of uric acid and an increase in the alloxuric bases. In other words, with normal katabolism of leucocytes and normal oxygenation, we have a normal excretion of uric acid and a minimum excretion of alloxuric bases; with abnormal increase of leucocytes and normal oxygenation we have formation and excretion of uric acid to the limit of the individual oxygenation powers and alloxuric bases corresponding to the excess of nuclein katabolism beyond the oxidation powers. The maximum of excretion of alloxuric bases, finally, and a minimum of uric acid excretion is observed where nuclein katabolism is excessive and oxygenation very much reduced.

Thus we see that normally all the nuclein is converted into uric acid, an innocuous non-toxic substance; a perversion of the normal function leads to the formation of alloxuric bases, the toxic properties of which we have described. Hence our statement that the formation of uric acid far from producing an auto-intoxication, on the contrary is a conservative process of disintoxication. A true decrease in the excretion of uric acid is really never observed excepting where most destructive changes have occurred in the kidneys so that *all* the solids are mechanically retained—this occurs in the last stages of Bright's disease, in certain surgical diseases of the kidneys, probably also in those cases where serious interference with the innervation of the kidney leads to complete functional inactivity.

What, now, is the vicious circle which, by causing a perversion of the normal nuclein metabolism produces the symptoms of so-called uric acid intoxication? It would be a superfluous task to enumerate the many factors that lead to the "uric acid" habit; they have been given a thousand times in masterful monographs on the subject; we need not speak of the recognized influence of heredity, the mode of life—which without the hereditary taint probably cannot produce gout—overexertion, alcohol, lead, etc.; suffice it to say that the taint itself consists in a tendency to disintegrate a quantity of nuclein far in excess of the quantity normally disintegrated; in other words, in a uratic subject nuclein-katabolism is excessive. At first the normal oxidation processes are capable of converting almost all the katabolic products into uric acid which is duly excreted by the kidney, at the same time small quantities of the poisonous alloxuric bases are formed which, entering the circulation and passing through the kidneys, exercise the deleterious influence that they are capable of producing and that have been enumerated above. As the autointoxication continues vital processes fall below par and with them probably oxidation processes; anemic conditions develop functional nervous disturbances and minute anatomic changes in the kidneys, which may ultimately lead to the destructive changes detailed above. During this period uric acid is excreted in somewhat increased quantity as the oxidation processes are still up to par. As the disease progresses in severity, whether in the natural course of the affliction or aided by indiscretion in diet, alcohol, mode of life, etc., the perversion progresses too in severity, and more alloxuric bases are formed and excreted and the process of chronic poisoning goes on; it is in this period that in all probability the inflammatory changes are produced in the joints and kidneys and elsewhere, which prepare the suitable nidus for the deposit of the uric acid—in the form of urates—that during all this time continues to circulate in the blood. We have no positive knowledge that the alloxuric bases are capable of producing these inflammatory and necrotic changes in the synovial membranes, but we do know that some substance other than uric acid must produce them before urate deposits occur (Levison), and we know further that alloxuric bases do produce the kidney changes following which analogous urate deposits occur in those organs; the assumption, therefore, that they are responsible for the joint lesions too is very probable. In the last stages of gout, finally, where all organs are severely damaged, both the excretion of uric acid and the formation of urate deposits ceases, probably because no more uric acid is being formed owing to the cachexia and the lowering of oxidation processes. At this time

the alloxuric bases are excreted in large quantity.

This is, in outline, the probable pathogenesis of uric acid lesions. A careful elaboration of the detail is reserved for later publication.

Before closing I wish to call attention to two valuable diagnostic adjuvants and to some therapeutic outlines that seem of value.

In "uric acid" subjects a peculiar phenomenon is observed in the blood, which, incidentally, is a strong fact in support of the nuclein-katabolism theory. Around the nuclei of the leucocytes a series of blue-black granules is observed, the perinuclear basophile granulations of Neusser, that are vastly increased in number in uric acid cases; they are always suspicious of the uratic diathesis and probably consist of disintegration products of nuclein. (See Croftan[33].)

In the urine an increase of the sum of the uric acid and of the alloxuric bases will be found, and while quantitative determinations of the uric acid alone yield results that are diagnostically valueless, a determination of the alloxuric bases will yield valuable results, as they are always increased. Uric acid fluctuates within normal boundaries; the appearance of alloxuric bases, on the other hand, is always an indication of perversion of function in the sense of excessive nuclein-katabolism with insufficient oxygenation.

Therapeutics.—The hereditary taint exists; the general rules that empiricism has taught us as to mode of life stand with only those limitations that we must impose on all deductions we draw from empiricism. But in the fully developed condition in lithemia, gravel, the onset of gout, we have measures at our disposal that can counteract; we can exercise an intelligent prophylaxis and possibly effect a cure in many instances if we will follow the rational precepts that a recognition of the above theories dictates. Two indications obtain—a reduction in nuclein-katabolism and a raising of the processes of oxygenation.

To attain the first object everything should be avoided that will produce a leucocytosis, viz., a number of drugs should never be administered (see above) and certain articles of diet that we know produce leucocytosis—notably proteids—should be reduced. Nuclein-containing foods, such as internal organs, yolk of egg, are bad. Overeating is bad. Let it suffice to outline these points. In a true uric acid case there will be excessive nuclein-katabolism despite all we may be able to do, in the very nature of the taint, and restrictions in diet will not be of any permanent benefit: the chief point of attack will be in the direction of raising oxidation and it is here that I have had the good results that I mentioned in the foot-note. A uric acid case should be treated as an anemic case in all measures employed to promote the oxygenation powers of the blood, i. e., the production of an increase in the red blood-corpuscles and of the hemoglobin and its chief oxygen carrier—iron. I administer iron in the forms and on the same rational principles that I would administer it to a chlorotic patient; arsenic is usually combined with it. I need not mention the many medical measures at our disposal to attain the above goal, nor the hygienic measures that will promote aeration of the blood; neither is this the place to critically discuss the merits or demerits of alkalies, salicylates, etc., and their efficiency as solvents and eliminators of poisonous products. The most striking results have been obtained in *acute* cases by inhalations of oxygen gas. On six occasions I did "cut" an attack of gout by giving the patient inhalations of oxygen repeated at short intervals; I can invariably relieve, if not cure, a uric acid headache, a migraine, in short, lithemic attacks, by oxygen inhalations. The benefits derived from the procedure are surprising and most gratifying and the relief to the patient almost instantaneous. What oxygen will do in uremia—which in my view is due to alloxuric base poisoning, not to uric acid poisoning—I have not been able to try as yet. I have a record to-day of only twenty-two cases in which results were so positive that they merit chronicling—my clinical facilities are limited and it is for that reason and in order to know as soon as possible whether the principles I advocate, when more widely applied, will merit universal acceptance, I request my patient readers to send me short reports of cases on whom they may consider it worth while to try oxygen inhalations. It would be a boon indeed to humanity if in so simple procedures as are advised a cure could be found for one of the most wide-spread scourges of overcivilization.

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RUBBER GLOVES OR GAUNTLETS.*

THEIR USE BY PHYSICIANS AND SURGEONS.

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Of late an effort has been made by some of our best surgeons to lessen the dangers of infection of wounds by pointing out the great difficulties of rendering the hands of the operator and assistants absolutely free from all infection-causing germs, and for this reason urging the more general use of sterile rubber gloves by physicians and surgeons.

Numerous ways of washing the hands by surgeons, assistants and nurses have been recommended. Some of these methods, if done intelligently and conscientiously, are supposedly reliable, others are less reliable. When not safeguarded all are objectionable, because they have to include in their carrying out the personal equation of the individual. If the most experienced, worthy and reliable may forget at the critical moment, when of all others he should be the one to remember, what must be expected of the ones recognized by the courts, the one of ordinary skill and intelligence?

Greater still than the danger of infecting wounds by the surgeon, who uses ordinary diligence and skill, is the danger of infecting women after childbirth or abor-

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tion, by the attending physician and nurse. I would venture the opinion that more women, during the child-bearing period, die or suffer invalidism from infection at the hands of the obstetric physician and nurse than from surgical operations, exclusive of those done for the relief of these conditions. The nature of the general practitioner's calling: treating all kinds of disease; coming and going at all hours; occasionally because of necessity or preference, doing "chores" about the barn, house or office: all this leads to a weaning away from the practice of ideal surgical cleanliness on his part, both as physician and surgeon. Besides it takes daily painstaking practice to successfully learn how to be surgically clean.

Let us grant for the sake of argument that a physician in attendance on the general run of cases, such as pneumonitis, pleuritis, typhoid fever, diarrhea, headache, indigestion, constipation and such like ailments is practically free from the danger of conveying these ailments to other patients. Can we say the same of all forms of ulceration, abscess, phlegmonous inflammations, erysipelas, tetanus, puerperal sepsis, diphtheria, scarlet fever, etc.?

Would you seek the services of one engaged in the treatment of such cases to confine your wives and daughters, even if you knew him to be a reasonably clean man? No and yes! No, if you knew that such a physician wore the same outer garments from house to house without donning a clean gown kept in the patient's house whenever he was brought in contact with infectious medical and surgical cases. No, if you knew that his hands were washed with a "lick and a promise" and a dash of deodorizer or antiseptic. No, if you could select a man with equal professional qualifications, and added to these a knowledge how and a practical desire to prevent infection through himself as a medium. Yes, if he were neat, painstakingly clean and used all known means to protect his patients from every source of contagion.

I know of no physician who would willingly cause unnecessary suffering and danger to those who have given him their confidence and placed their health and lives in his keeping, and it is in this spirit that I urge on you the habitual use of sterilized rubber gloves or gauntlets after cleansing the hands by some good method, in every case where your intelligence points out the advantage to your patient. *It should be the rule*: 1. In obstetric practice. 2. In operating on all forms of septic cases. 3. In the examination and treatment of all forms of septic, infectious diseases, such as erysipelas, septicemia and pyemia in which the hands come in contact with primary or secondary foci of infection—and this rule applies to the nurse also. 4. In operating on clean cases soon after operations on infected ones. 5. In abdominal sections following vaginal operations on the same individual, this may be reversed, wearing the gloves during the vaginal work, taking the gloves off or donning a fresh pair before beginning the abdominal work. 6. In examination of fresh wounds after recent examinations of or operations on dirty cases. 7. In all forms of rectal surgery.

It is a matter of choice under other circumstances whether or not gloves be worn. However, there is no question that there is less danger of infection where gloves are worn than when reliance is placed in an attempted sterilization of the naked hands. We have the testimony of two good American surgeons, Halsted of Johns Hopkins and McBurney of New York, as to the truth of the lessened dangers of infections when sterilized rubber gloves are worn by all persons taking part in the conduct of a surgical operation. Many American and European surgeons now use rubber gloves.

An impervious cotton glove is perhaps quite as good as the rubber article—the ordinary cotton glove is not safe. During the six months I have been using the rubber gauntlets in my work my results have been more gratifying than formerly. Occasionally I have felt compelled to take off the gloves in order to carry out some technic more satisfactorily, but such acts seldom occur now. There is little difference in tactile sensibility between the naked fingers and those covered with a well-fitted, good-articled rubber glove. The advantages outweigh the possible, in rare instances, lessened tactile acuteness. One dozen pairs of the best quality can be bought for $15. Sterilized glycerin may be used to lubricate the hands before drawing on the gloves. A glove that cannot be reasonably easily drawn over the hand after filling the glove with sterile water is too small. Vaselin or grease ruins the rubber. The gloves should be either boiled or wrapped in a towel and placed in a steam sterilizer. Lastly, rubber gloves are a protection to the physician and surgeon against infection.

SEROTHERAPY.*

COMBINED WITH FAVORABLE CLIMATIC AND STRICT HYGIENIC SUPERVISION OF THE PATIENT—REPORT OF 106 CASES TREATED DURING 1898.

BY C. P. AMBLER, M.D.

ASHEVILLE, N. C.

The consensus of opinion among the conservative of our profession is now well established that medication in any form only plays a minor part in the treatment of pulmonary tuberculosis. It has been the experience of all that strict supervision of the patient as regards his hygienic life, including rest, exercise, diet, secretion and excretion, is first and foremost of the most vital importance and necessity. Secondary to the hygienic supervision of the patient we must admit that favorable climatic influences are without doubt our most tried and most trustworthy dependence, while medication in point of preference occupies third place.

Cases are continually being cited in which the improvement is attributed to one or the other, while our most favorable statistics are invariably presented by those at whose hands the greatest facilities for the application of all these methods are available.

In presenting this report of cases I wish to place myself on record as attributing the results obtained to these three factors in the order named.

We have insisted on the most rigid observations of all directions as to hygiene, following closely what has been found after several years' experience in institutional work to be the best for this class of patients. This has included particularly the avoidance of over-exertion; the regulation of diet; exercise and rest in bed; the observation of temperature; pulse; regulation of excretory functions; instruction as to the time for eating heaviest meals; time to elapse between meals; cold bathing; proper dress, fresh air; breathing exercise; taking of stimulants, sexual indulgence; and in fact all those little things which in themselves once occurring are nothing, but which often repeated, and carried to excess, have a marked influence on the well-being of our patient.

We can without doubt be pardoned for claiming that the climate of Asheville has been of valuable assistance.

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almost without exception the patients have resided in boarding-houses and hotels, care always being taken to see that such place is conducted in a sanitary manner. It has been our policy to use as little medication by the stomach as possible, but we are free to admit that we have not hesitated to use any drug, inhalation, operation or application that a given case demanded.

I might again be pardoned while I state that I do not believe we have or ever will have a "specific" for tuberculosis. The very nature of the disease and the different circumstances concomitant with all cases render such a likelihood improbable. The past few years have developed radically new methods in the medication of this disease, the two most prominent methods, still, strictly speaking in the experimental stage, being: 1, the application of culture products direct to the patient according to Koch and his followers, and, 2, the carrying of these culture products through some lower animal, thus rendering the animal more or less "immune," and then applying the serum of this animal's blood to the patient.

After several years' experience, both in institution and private practice, with the culture product method, I am free to confess that I do not consider it without a certain element of danger, while I am equally well satisfied that better results, on the whole, followed its use than were obtained before its production.

My experience with the serum method extends over a period of two years, in a private practice devoted to tubercular diseases, and forms the basis for this paper.

It is not my intention to take up your time by citing the history and authorities of serotherapy, or to read in detail the report of the cases submitted. I shall limit my remarks to actual clinical experience, and present the tabulated report for the inspection of those so minded.

Owing to the unscrupulous mercenary methods and self-evident exaggerated reports of certain scientific and unscientific manufacturers, lauding their own products, the profession are rightfully becoming suspicious of any one advocating, using or producing sero-products. I have no ax to grind, am not before you as a manufacturer or producer, and am not here for the purpose of championing any producer's cause.

In the classification of this report I have not adhered to what many term the first, second and third stages. Under Class A we have recorded all those cases who (on commencing treatment) in our judgment had good chances for recovery. Under Class B occur those cases in which great improvement could be expected but an entire recovery was doubtful. Class C represents those cases presenting such complications or extensive involvement that but slight encouragement could be given.

Under this classification I have considered the patient's chances from all points of view: his physical condition, history, temperament, hygienic habits, surroundings, and his financial condition. This latter may seem a cold-blooded cause for classification, but nevertheless in all cases it becomes of importance. For instance, No. 46 Class A could not have been so classified (cavity being present), if she had not been financially able to refrain from work and conduct herself as one with a rapid heart must necessarily do if recovery is to be expected. Again, No. 98, Class C could have been placed in Class B in case she could have stopped work. As it was she was a charity case, compelled to work to pay her board, and did not do well.

Under each individual case the top line represents the condition upon commencement of treatment and the under line his condition on discharge or cessation of treatment. Many cases in both B and C were compelled to stop while rapidly improving, on account of financial and domestic troubles, this undoubtedly giving a lower percentage of recoveries in these classes than was actually possible.

In summarizing the report we have kept the three classes separate and attempted to show average results in each class, believing that to average such cases without classification gives but little idea of what can be accomplished. The cases occurring under Class C were in most part poor cases, and were not treated with any idea of cure, but in an attempt to ameliorate suffering and distressing symptoms.

Class of Cases in Which Indicated.—The use of antitubercle serum would seem to be indicated in the incipient cases and more especially in those presenting a simple infection. As will be seen from the tabulated report, good results have also been accomplished in a majority of the cases classified under Class B, while in advanced cases we find we can often temporarily arrest progress of the disease and relieve distressing symptoms, but the remedy, even under most favorable circumstances, fails as everything must fail, to bring about recovery in such cases.

Contraindications.—Generally speaking, the use of antitubercle serum seems to be contraindicated in cases of miliary tuberculosis, in cases of extensive softening, high pulse, marked emaciation or decided hereditary history. This, I take it, means that these cases will, in all probability progress, no matter what form of medication is used. As a rule, the injections have not been given where the temperature reaches a maximum of over 101 degrees daily, our experience having been that such a temperature in an early case is invariably the result of some indiscretion on the part of the patient.

Advantages Over Other Forms of Medication.—The hypodermic injection of the remedy precludes the possibility of direct interference with the processes of digestion and assimilation. The absence of medication by the stomach is, with proper instruction as to diet, certainly to the advantage of the patient. We have less indigestion, less flatulency, less bowel complaint, and invariably build up a better appetite with corresponding power to better digest and assimilate a full meal of ordinary breadstuffs.

My experience corresponds exactly with that of Dr. J. Edward Stubbert of the Loomis Sanitarium for Consumptives[1], in that the bacilli disappear from the sputum long before the latter has entirely ceased. Relapses during treatment and after are much less frequent than under any other form of medication I have ever tried. This in itself means much when we stop to consider that in the usual course of tuberculosis the disease is one of relapses.

Allow me at this point to refer to Case 20, Class A, a patient who was under treatment for fifteen months. Two weeks after she was discharged as apparently cured she was taken down with typhoid fever and was treated by a brother practitioner in our city hospital, for six weeks, recovering fully from a severe case of fever, and without developing any untoward pulmonary symptoms. Her father now writes me, eight months later: "Nina is the picture of health, no cough, no expectoration, no fever, weighs more and is better than ever in her life"—a good test, you will admit.

Cases herein cited as "cured" have returned to their homes and in no instance, to my knowledge, has a case in Class A relapsed up to this time, notwithstanding

[1] Trans. Am. Clin. Assn., 1899.

TABULATED REPORT OF 106 CASES OF PULMONARY TUBERCULOSIS TREATED DURING 1898.

The top line of each individual case represents condition when treatment was commenced; under line represents condition on discharge or cessation of treatment.

Number	Class	Initials	Age	How Long Sick	Max. Daily Temperature	Pulse	Cough	Tubercle Bacilla	Streptoccoci	Cavity Formation	Elastic Tissue	Night Sweats	Haemorrhages	Vital Capacity	Weight	Complications	Dullness on Percussion	Time Treated	Serum Used	Results	Remarks
1	A	E.E.P.	30	2 yr.	101. 98.2	108 88	mod none	10 0	0 0	0 0	0 0	occasional 0	yes 0	110 160	96 112	0 0	R. to 3 Rib. ant. R. to clavicle	12 wk.	42 c.c.	Cured	No Relapse after 9 mo. Gone Abroad on pleasure.
2	A	C.S.M.	34	15 yr.	99.5 98.2	100 92	mod Slight	20 0	0 0	0 0	0 0	0 0	0 0	170 180	170 178	Rectal Abscess Cured	R. to 2 Rib ant. None	1 mo.	30 c.c.	greatly improved	Back at work
3	A	E.H.G.	7	2 mo.	99.6 99	118 96	Slight None	0 0	0 0	0 0	0 0	0 0	0 0	50 60	41 48	17 cervical glands Cured	R. Lower Lobe None	2 mo.	44 c.c.	Cured	No relapse after 10 mo.
4	A	A.A.	20	2 mo.	99.6 98.2	88 80	Slight none	0 0	0 0	0 0	0 0	0 0	yes 0	140 160	148 149	0 0	L. to Clavicle None	3 mo.	58 c.c.	Cured	No relapse after 7 mo
5	A	T.J.N.	42	7 yr.	100 98.2	108 90	Severe none	20 0	0 0	0 0	0 0	0 0	0 0	90 140	135 140	0 0	L. to 2 Rib None	1 mo.	30 c.c.	Cured	No relapse after 9 mo. (Cabinet continued 2 mo.)
6	A	H.A.S.	25	1 yr.	100 98.2	88 76	Slight none	30 0	0 0	0 0	0 0	0 0	0 0	120 150	120 136	fistula - Rectal Cured	R. apex None	3 mo.	72 c.c.	Cured	Back at work No relapse after 5 mo.
7	A	E.P.	29	1 yr.	99. 98.1	88 80	Slight none	6 0	0 0	0 0	0 0	0 0	0 0	140 160	146 151	0 0	R. to 2 Rib Slight	6 mo.	100 c.c.	Cured	Stenographer. Back at work No relapse after 11 mo.
8	A	M.W.	33	6 yr.	99.5 98.2	84 80	Slight none	5 0	0 0	0 0	0 0	0 0	0 0	155 155	150 150	0 0	L. to 2 Rib Slight	8 mo.	78 c.c.	Cured	Prof nurse. Back at work No relapse after 6 mo.
9	A	A.S.	17	3 mo.	99.5 98.5	80 76	Slight none	0 0	0 0	0 0	0 0	0 0	slight 0	120 140	120 136	0 0	R. to 1 Rib None	3 mo.	72 c.c.	Cured	Diagnosis made from physical Condition and History
10	A	G.T.	39	1 yr.	100. 98.5	92 82	Severe none	10 0	0 0	0 0	0 0	yes 0	yes 0	50 130	85 102	Indigestion none	R to 3 Rib None	4 mo.	144 c.c.	Gr. Improved.	Teacher. Back at work No relapse after 6 mo.
11	A	H.B.	37	6 mo.	99.5 98.2	76 76	Slight none	5 none	0 0	0 0	0 0	yes 0	0 0	210 230	145 168	0 0	L. to 1 Rib. Slight.	3½ mo.	120 c.c	Cured	Back at work No relapse after 7 mo.
12	A	H.S.	33	2 yr.	100 98.2	88 84	mod. None	occasional 0	0 0	0 0	0 0	0 0	0 0	170 220	160 168	mitral insufficiency " "	R to 2 Rib None	4 mo	180 c.c.	Cured	Back at work. No relapse after 10 mo.
13	A	A.E.S.	27	6 mo.	100.5 99.	92 92	Slight Slight	4 0	0 0	0 0	0 0	0 0	yes 0	210 250	126 136	Haemorrhages 0	L. apex None	3 mo.	62 c.c.	greatly improved	Went home on account of domestic affairs.
14	A	C.M.C.	20	9 mo.	100 98.2	88 80	Slight none.	6 0	0 0	0 0	0 0	0 0	0 0	210 260	133 140	16 enlarged glands 0	L. apex. none	3 mo.	100 c.c.	cured	Back at work No relapse after 4 mo.
15	A	W.M.D.	45	22 mo.	99.5 98.2	88 80	Slight none	occas. 0	0 0	0 0	0 0	0 0	0 0	200 240	127 140	Indigestion improved	R to 2 rib ant. None	2 mo.	65 c.c.	cured	Back at work Letter inquiry not answered
16	A	J.T.	27	6 mo.	102. 99.	120 96	Severe moderate	20 3	yes 0	0 0	0 0	0 0	yes 0	150 165	110 128	0 0	L. to 3 rib ant. Slight	3 mo.	88 c.c.	gr. improved	No relapse after 3 mo.
17	A	C.H.P.	64	14 mo.	100. 98.3	100 84	moderate none.	3 0	0 0	0 0	0 0	0 0	0 0	160 220	185 207	asthmatic improved	L. to 3 rib, post. None.	3 mo.	90 c.c.	cured	Lady No relapse after 7 mo
18	A	A.S.G.	29	14 mo.	101. 98.3	112 88	moderate none.	10 0	0 0	0 0	0 0	0 0	0 0	110 180	130 152	0 0	L. to 2 rib ant. none.	11 mo.	130 c.c.	cured	female clerk. Worked all time.
19	A	M.G.	21	12 mo.	99. 98.3	88 80	moderate. none.	20 0	0 0	0 0	0 0	0 0	0 0	220 260	121 129	hip Joint Disease since Child	L. to 3 rib ant. Slight	8 mo.	196 c.c.	cured	Clerk. Back at work. No relapse after 7 mo.
20	A	I.F.	22	12 mo.	101. 98.2	96 80	moderate. Slight	20 0	0 0	0 0	0 0	0 0	0 0	110 145	122 135	Pleurisy effusion Cured	L. to 4 rib ant. None.	15 mo.	205 c.c.	cured	No relapse after 6 mo.
21	A	F.B.	35	7 mo.	99. 98.2	82 76	moderate none	occasional 0	0 0	0 0	0 0	0 0	0 0	120 160	108 116	enlarged glands cured	L. to 2 rib ant. None	14 wk.	102 c.c.	cured	teacher. Back at work. No relapse after 11 months.
22	A	R.B.	17	12 mo.	99. 98.2	84 80	Slight none	3 0	0 0	0 0	0 0	0 0	yes 0	160 200	150 165	0 0	R. to 2 rib. ant. None	9 wk.	54 c.c.	cured	minister. Back at work no relapse after 10 mo.
23	A	R.N.B.	33	12 mo.	100 98.2	80 80	slight none	occasional 0	0 0	0 0	0 0	0 0	yes 0	140 200	140 145	0 0	L. to 2 rib ant None	12 wk.	66 c.c.	cured	Minister. Back at work No relapse after 14 mo.
24	A	M.A.C.	27	24 mo	101.5 98.3	96 82	moderate Slight	10 0	0 0	0 0	0 0	yes 0	yes 0	175 200	150 156	0 0	L. to 2 rib ant. Slight.	4 mo.	150 c.c.	gr. improved	farmer. Stationary 7 mo. later.
25	A	W.S.B.	40	3 yr.	101. 98.5	92 80	moderate. none.	60 0	0 0	0 0	0 0	0 0	0 0	180 220	150 154	0 0	R. to 2 rib ant. None	3 mo.	98 c.c.	Cured	R.R. Conductor. Back at work. No relapse 9 mo. later. Albany c
26	A	H.M.S.	33	1 yr.	99.5 98.2	96 82	moderate none	10 0	0 0	0 0	0 0	yes 0	0 0	145 200	130 145	0 0	R. entire upper lobe. Slight.	4 mo.	112 c.c.	cured	Lady Back home Selma ala No relapse after 4 mo.
27	A	G.R.S.	44	4 yr	101 98.3	92 88	moderate slight	15 3	0 0	0 0	0 0	yes 0	yes 8 0	185 200	135 140	Sl. Pleurisy Cured	R. to 2 rib ant. slight	7 mo	84 c.c	gr. improved	3 mo later pronounced cured by home physician

28	A	SL	28	1 yr	100.5 98.2	88 80	moderate none	occasional none	0 0	0 0	0 0	0 0	0 0	205 240	125 128		R to 3 rib ant. None	8 mo.	92 cc	cured	Merchant. Back at work. No relapse after 8 mo
29	A	LG	30	2 mo.	99. 98.2	80 80	moderate Slight	3 none	0 0	0 0	0 0	0 0	0 0	180 190	110 120	Sl. pleurisy Cured	L apex None	7 mo.	72 cc	cured	Clerk Back at work No relapse after 6 mo.
30	A	MG	32	1 yr.	100. 98.2	84 76	moderate none	occasional none	0 0	0 0	0 0	yes 0	yes 3 0	230 250	126 138	Sl albumen in urine Cured	R to 2 ant. None	9 mo.	92 cc	cured	Merchant. Back at work. No relapse after 6 mo
31	A	TC	22	1 yr.	101. 98.2	96 84	moderate none	10 0	7 0	0 0	0 0	few 0	Slight 0	200 225	132 136		L to 2 rib ant. Slight at apex.	3 mo.	84 cc	cured	No relapse after 7 mo.
32	A	LT	31	6 wk.	100. 99.	80 80	moderate none	0 0	0 0	0 0	0 0	0 0	0 0	110 140	114 125	nasal polypus Cured by operation	L to 2 rib ant. None	4 mo	30 cc	cured	No relapse after 3 mo.
33	A	MNC		2 yr	100.5 99.	88 80	moderate Slight	20 0	0 0	0 0	0 0	0 0	0 0	140 180	140 150		R to 3 rib ant. Slight	5 mo.	80 cc.	cured	Back at work.
34	A	GE	27	6 mo	100. 98.2	80 76	Slight None	30 0	0 0	0 0	0 0	0 0	0 0	140 180	100 122	Tub ulcer palate tip Cured	R apex None	9 mo.	140 cc	cured	Teacher. Back at work. No relapse after 5 mo.
35	A	EBE	29	2 mo	101. 98.3	88 76	Slight None	20 0	0 0	0 0	0 0	0 0	yes 4 0	170 195	129 135		L. to 2 rib ant. None	3 mo.	90 cc	cured	Civil engineer. Back at work No relapse after 5 mo.
36	A	CRP		3 mo.	100. 98.5	80 80	Slight None	0 0	0 0	0 0	0 0	0 0	yes 2 0	200 240	132 142	Indigestion Cured	R apex None	8 wk.	42 cc	Cured	Diagnosis made from phy ex No relapse after 6 mo.
37	A	EK	29	6 mo.	100. 99.	96 80	Slight none	20 25	0 0	yes yes	yes 0	yes 0	0 0	140 160	7 156	Sl Tub. Deposit in larynx Cured	L apex None	7 wk	32 cc	stationary	advised to continue but refused.
38	A	CMD	51	5 mo	100.5 99.	88 80	Slight moderate	3 20	0 0	0 0	0 0	yes 0	0 0	200 280	160 156	Pleurisy Cured	L apex post None	6 wk	42 cc	gr improved	Went home on account domestic affairs. Relapsed
39	A	EC	20	3 mo.	983 98.2	88 84	Slight none	10 0	0 0	0 0	0 0	yes 0	yes 0	210 220	146 158	Sub. laryngx & pharynx improved	L to 3 rib ant. Slight	6 mo.	92 cc	gr. improved	Back at work. No relapse after 4 mo.
40	A	EHR	17	9 wk.	102. 100.	96 90	Slight Slight	0 10	0 0	0 0	0 0	0 0	yes-2 yes-3	140 145	117 114	Tub. larynx Cured	L. apex. L. apex.	9 wk.	56 cc	improved	Discharged on account of conduct.
41	A	MB	20	3 yr.	99.5 99.	92 82	severe Slight.	15 5	0 0	0 0	0 0	0 0	0 0	160 160	114 123	Tub larynx. aphonia Cured	R & 2 rib ant. Slight	8 wk.	60 cc	gr improved	Pul. trouble cured No relapse after 4 mo.
42	A	MC	20	5 mo.	99. 98.2	92 80	Slight none	0 0	0 0	0 0	0 0	0 0	yes sl 0	100 145	116 122	None none	R. to 2 rib ant. None	5 mo.	96 cc	Cured	No relapse after 2 mo.
43	A	LR	45	6 mo.	99.3 98.3	82 76	Slight none	10 .0	0 0	0 0	0 0	0 0	0 0	170 180	153 162	None none	R to 3 rib ant. None	3 mo.	92 cc	Cured	merchant. Back at work No relapse after 2 mo.
44	A	BCW	33	2 yr.	99.5 98.5	78 72	moderate Slight	4 0	0 0	0 0	0 0	0 0	0 0	220 240	141 145	Spinal Trouble. Threatened locomotor ataxy Stationary	L. to 2 rib ant. None	4 mo.	76 cc.	Cured	No relapse after 2 mo.
45	A	JTH	25	2 mo.	100. 98.5	84 72	Slight none	occasional 0	0 0	0 0	0 0	yes 0	0 0	180 200	117 128	none none	L. to clavicle None	9 wk.	44 cc	Cured	Back at work No relapse after 5 mo
46	A	ASN	21	2 yr.	99.5 98.2	96 82	Slight none	20 0	0 0	yes 0	yes 0	3 0	Slight 0	120 200	141 156	Irritable heart Cured	R. to 2 rib ant. none.	11 mo.	60 cc	Cured	gone abroad on pleasure No relapse after 11 mo.
47	B	HEN	30	1 yr.	100.5 98.5	112 92	moderate Slight	50 0	yes 0	yes yes	yes 0	occasional 0	yes 3 0	150 210	131 142	Old pleurisy fifth improved	R. dull on percuss R to 3 rib ant.	11 wk	33 cc	greatly imp.	Back at work Electrician
48	B	RFJ	32	3 yr	100. 98.2	100 96	moderate none	10 0	0 0	0 0	0 0	0 0	0 0	80 85	101 112	anemia improved	L to 3 ant L. to clavicle	7 wk	24 cc	improved	Teacher Back at work No relapse Disease stationary
49	B	HHH	42	3 yr.	100. 98.3	96 84	moderate Slight	40 10	yes 0	yes yes	yes 0	yes 0	yes 6 0	120 165	124 138	Empyema antrum H. imp. by operation	L to 4 Rib ant. L to 4 Rib ant	6 mo.	82 cc	greatly improved	Cotton buyer. Back at work Improvement continues
50	B	AOS	44	1 yr	100. 98.2	100 92	moderate Slight	10 0	0 0	0 0	0 0	0 0	yes 0	110 130	157 160	Exzema Cured	L. to 4 Rib ant L. to clavicle	2 mo.	40 cc	improved	Stationary 6 mo. later.
51	B	EO	37	3 yr.	101. 98.3	96 88	moderate moderate	100 10	yes yes	yes yes	yes 0	yes 0	slight 0	95 135	130 138	exzema improved	L to 5 Rib ant L to 3 Rib ant	4 mo	30 cc	gr. improved	Cavity Shrinking rapidly disease arrested.
52	B	JvG	41	3 yr.	100.5 98.4	88 84	Severe Slight	numerous 10	yes 0	yes yes	yes 0	slight 0	slight 0	90 140	162 180	Had Pneumonia during 2d mo. treat	L entire Cav large L entire Cav Smaller	16 mo	208 cc	greatly improved	Wants to go to work
53	B	WT	28	3 yr.	100.5 98.2	92 76	Slight None	20 0	0 0	0 0	0 0	0 0	yes 1 0	150 165	132 138	gonorrhoea Cured	R to 4 Rib Slight.	9 mo	60 cc	Cured	Back at work. Barber No relapse after 5 mo.
54	B	JTS	31	6 mo.	101.5 99.	104 84	severe Slight	10 0	0 0	yes 0	yes 0	yes 0	yes 0	120 150	120 136	rectal abscess Cured	L to 3 rib ant L to clav	3 mo	36 cc.	Cured	Back at work No relapse after 5 mo.
55	B	WB	20	1 yr.	100.5 99.	88 80	severe Slight	20 0	0 0	yes yes	yes 0	yes 0	yes 8 905	90 120	134 136	repeated haemorrhage None	L. to 4 Rib ant L to 2 rib	2 mo.	54 cc	ordered out on account of conduct greatly improved	4 mo. later relapsed with more haemorrhages
56	B	MB	33	1 yr.	101. 983	80 80	Severe Slight	10 10	yes yes	0 0	0 0	yes 0	0 0	90 140	140 145	Tubercular larynx Cured	L to 3 rib ant L to clav	3 mo.	90 cc.	greatly improved	3 mo later reported stationary
57	B	HEB	40	18 mo	100. 99.	92 88	moderate Slight	20 occasional	0 0	0 0	0 0	0 0	0 0	160 200	121 130	Stomach trouble improved	L to 3 rib ant L to 2 rib ant	9 wk	51 cc	greatly improved	Home on account domestic affair. No relapse 3 mo later.

Number	Class	Initials	Age	How Long Sick	Max. Daily Temperature	Pulse	Cough	Tubercle Bacilla	Streptoc.	Cavity Formation	Elastic Tissue	Right Sweats	Hæmorrh. ages	Vital Capacity	Weight	Complications	Dullness on Percussion	Time Treated	Serum used	Results	Remarks
58	B	W.R	36	1 yr.	101. 98.3	112 92	moderate Slight	numerous none	0 0	small none	yes 0	yes 0	yes 0	160 220	132 138	Pleurisy (Tapped) none	Entire left L. to 3 rib ant.	7 mo.	78 cc	Cured	no relapse after 10 mo.
59	B	A.P.	35	18 mo	100.5 98.4	100 98	moderate Slight	15 3	yes 0	small none	0 0	yes 0	0 0	100 125	108 118	Tub. Diarrhoea Cured	L. to 3 rib ant and R to 2 rib ant. L to 2 rib.	5 mo	80 cc	gr. improved	no relapse after 4 mo.
60	B	T.I.	33	2 yr.	101. 99	100 92	moderate Slight	30 10	0 0	large yes	yes 0	yes 0	0 0	? 110	144 150	Emphysema Empliysema	L. to 4 Rib. L. to 2 Rib ant	14 mo	114 cc	gr. improved	Since died pneumonia (?)
61	B	R.M.	28	1 yr.	99.2 98.2	80 80	Severe moderate	10 0	0 0	0 0	0 0	yes 0	yes 0	170 240	148 155	Tub. larynx sl. Cured	L. lower lobe. Slight.	14 wk.	45 cc.	Cured	Back at work
62	B	C.B.	31	1 yr	99.5 98.3	78 76	Slight Slight	20 0	0 0	0 0	0 0	yes 0	yes 0	210 250	155 157	Indigestion improved	R Lower Lobe. Slight.	12 mo	180 cc.	apparently cured	Back at work
63	B	A.B.	50	11 mo.	101. 100	100	moderate	30	0	0	0	yes	yes 6	?	208	Developed Brights and died.	L. to 3 rib ant.	5 wk	20 cc.	Died from acute Bright's	Been on creosote 7 mo
64	B	C.S.B	31	18 mo	101.5 99.	104 92	Severe moderate	numerous 3	0 0	small 0	0 0	0 0	0 0	120 125	92 111	Tub. larynx. not improved	L. to spine scap post. L to 1 rib.	3 mo.	72 cc.	improved	
65	B	C.F.	42	14 mo	99.5 99.	92 100	moderate moderate	numerous 50	0 0	yes yes	yes yes	yes 0	yes 0	120 130	140 136	Tub. Testicle removed	Both apex Both apex	5 mo.	68 cc.	sl. improved	
66	B	W.K.D.	34	1 yr.	100.5 99	88 88	moderate none	from leg yes	0 0	0 0	0 0	0 0	0 0	185 200	140 142	Hip Joint Disease. Discharge stopped	L. apex none	6 mo.	108 cc.	gr. improved. apparently cured	Leg had been operated 3 times
67	B	S.D.H.	54	9 yr.	100 98.3	96 82	moderate Slight	45 6	0 0	yes yes	yes 0	yes 0	0 0	160 190	142 144		Both to 3 rib ant L. to 2 rib	5 mo	84 cc.	gr. improved	Still under observation
68	B	F.H.W.	39	18 mo.	101. 99.	100 88	moderate Slight	30 10	0 0	yes 0	0 0	yes 0	0 0	125 135	117 118	Indigestion-Creosote Improved	Both apex. Both apex	4 mo.	64 cc.	sl. improved	Returned home and is still upon serum.
69	B	C.L.A.	31	1 yr	99.5 98.5	92 84	moderate Slight.	20 4	0 0	yes yes	0 0	yes 0	yes 0	200 210	116 129	Sl. pleurisy none	R. to 3 rib R. to clav.	5 mo.	122 cc.	gr. improved	Still under observation
70	B	S.B.S.	24	4 yr.	100.5 99.	88 80	moderate Slight.	10 10	0 0	yes yes	yes 0	yes 0	yes-4 0	120 140	120 122	Tub. Diarrhoea improved	R. to 3 rib. R. to Clav.	2 mo.	28 cc.	improved	Back at Work
71	B	C.S.D.	27	6 mo.	99.5 98.5	108 100	Severe Slight	occasional 10	0 0	0 0	0 0	yes 0	yes 0	150 160	146 165		L. to 5 rib L. to 4 rib.	12 wk.	72 cc	improved	Back at Work
72	B	J.F.C.	29	6 wk.	100.5 99.	100 84	moderate Slight	10 0	0 0	0 0	0 0	yes 0	yes 0	135 180	126 135	Pleurisy-effusion Cured	L. L. ant. L. L. ant.	11 mo.	82 cc	apparently cured	Back at Work. No relapse after 9 wk
73	B	H.M.	34	3 yr.	101. 99.5	112 96	severe moderate	30 40	0 0	yes yes	yes 0	yes 0	yes 9 0	105 120	131 150	fistula - Cured. Tub larynx-arrested	L. to 5 rib ant L. to 5 rib ant.	8½ mo	114 cc.	gr. improved	
74	B	J.M.	37	9 yr.	100.5 99.	94 92	Severe moderate	numerous 30	0 0	yes yes	yes 0	yes 0	yes-6 0	150 180	143 145	Pleurisy none	L to 3. R. to 1 Rib. L to 3 ant.	5 mo.	60 cc.	improved	Back at work
75	C	T.J.M.	29	1 yr.	102. 101.	116 128	Severe Severe	numerous numerous	yes yes	yes yes	yes yes	yes 0	0 0	80 75	118 108	enlarged glands and feeble heart action	L. Lower Third " " "	5 wk.	20 cc	Worse	Sent home on account feeble heart action
76	C	M.W.	30	1 yr	102. 102.	112 136	Severe Severe	numerous	yes	yes	yes	yes	yes	?	100	Pleurisy	Whole right.	2 wk	12 cc	Died - from Pneumothorax	Brought on by over-exertion
77	C	J.J.S.	33	13 yr.	101. 99 2	100 96	Severe moderate	numerous 20	yes yes	small 0	yes 0	yes 0	yes 0	60 110	140 148	Indigestion better	R. to 4 Rib ant R to 2 rib ant.	5 mo	30 cc	gr. improved	Back at work. No relapse after 8 mo
78	C	R.S.	19	6 mo.	101.5 99.	96 108	Severe moderate	numerous 50	yes 0	yes Smaller	yes 0	yes 0	yes 0	80 105	106 110	chronic Spinal + meningeal Trouble improved.	R to nipple R to clav.	6 mo	68 cc	gr. improved	went home. afterward to Texas and died 2 da later
79	C	M.S.	16	12 yr.	102.5 100.	116 100	Severe moderate	myriads numerous	yes yes	yes yes	yes yes	yes 0	0 0	70 80	100 106	Indigestion none	Whole left " "	6 mo	80 cc	improved	stationary 6 mo later
80	C	O.S.	33	3 mo.	103. 99.8	100 112	Severe moderate	300 est 200 est	yes yes	yes yes	yes yes	yes 0	0 0	148 140	150 152	Pleurisy none	R. to 4 rib ant and L. to 2 Rib ant	3 mo	92 cc	Stationary	Since grown worse
81	C	J.D	22	1 yr.	102.5 100.	112 136	Severe Severe	numerous numerous	yes yes	small small	yes yes	yes 0	yes yes	110 90	122 120	developed Tub Diarrhoea Worse	Entire left	3 wk	18 cc	Worse	
82	C	C.C.	19	3 yr	102.5 100	108 112	Severe Severe	30 20	yes yes	large large	yes yes	yes 0	0 0	50 70	100 104	Tub. larynx improved	entire left. entire left	6 mo.	80 cc	Stationary	advised to go home. Died.
83	C	E.C.	30	2 yr.	101. 99	100 88	Severe moderate	15 6	yes yes	yes yes	yes 0	yes 0	0 0	140 160	141 150	mediastinal abscess improved	L. to 4 rib ant Slight	2 mo.	96 cc.	gr. improved	returned home on account domestic trouble
84	C	L.M.	22	2 yr.	100. 100.	100 92	Severe Severe	60 20	yes yes	yes yes	yes yes	yes 0	yes 0	120 130	128 135	Pleurisy-effusion improved	R. to 4. L. to 3 rib ant. R. to 4. L. to 2 rib ant.	2 mo.	40 cc.	stationary	Sent home. since died
85	C	G.S	32	6 mo	102 99.	112 92	Severe moderate	100 40	0 ?	yes yes	yes ?	yes 0	yes 0	135 150	140 145	120 gr morph daily 10 gr morph daily	R to 4 rib ant. R to 2 rib ant	3 mo.	90 cc	gr. improved	Physician. Back at work

85	C	G.S.	32	6 mo	102 99.	112 92	Severe Moderate	100 40	0 ?	yes yes	yes ?	yes 0	yes 0	135 150	140 145	120 gr morph daily 10 gr morph daily	R to 4 rib ant. R to 2 rib ant.	3 mo.	90 cc	gr. improved	Physician. Back at work. Serum ✓ improvement contd.
86	IC	F.K.	26	18 mo	102. 102+	110 120	Severe Severe	50 50	yes yes	yes yes	yes yes	yes 0	yes 0	129 125	135 130	extensive Tub laryn. Worse	entire L ✓ R to 3. " " " "	1 mo.	20 cc	Worse	Sent home and died few weeks later.
87	C	C.T.P.	33	3 yr.	102. 100.	120 110	Severe Moderate	100 30	yes yes	yes2 yes	yes yes	yes 0	yes yes		98	Tub diarrhoea improved	L. to 3 rib ant L. to 3 rib ant.	4 mo	100 cc	Worse	Since died
88	C	G.B.T.	30	1 yr.	102. 102	112 120	Severe Severe	50 50	yes yes	yes yes	yes yes	yes yes	yes yes	90	120	Tub. larynx ✓ ear improved	R. to 3 rib ant. L. to 3 rib ant.	6 wk	40 cc	Worse	
89	C	M.W.D.	33	4 yr.	101. 99.	120 92	Severe Severe	20 10	0 0	yes yes	yes 0	yes 0	yes 0	180 200	150 152	Tub. larynx gr. improved	L to 4 rib ant. L to clavicle	3 mo	108 cc	gr. improved	Become discouraged. Stopped. Treat ✓ 4 mo later died.
90	C	M.M.	34	22 mo	101. 100	100 96	Severe Severe	15 25	yes yes	large large	yes yes	yes 0	0 0	105 110	105 102	Tub. larynx improved	entire left. entire left.	2 mo.	52 cc	Worse	
91	C	E.F.S.	26	5 yr	101. 99.	96 82	Severe Slight	30 10	? 0	yes yes	0 0	yes 0	yes 0	130 140	131 142	Indigestion improved	L. to 4. R to 3 rib ant L to 4 R to 1 rib ant	4 mo	108 cc	improved	
92	C	W.H.M.	36	7 yr.	101. 100.	112 92	moderate Slight	30 20	yes yes	yes yes	0 0	yes 0	0 0	120 150	112 115	Indigestion improved	L. to 5 Rib ant L to 5 Rib ant.	6 mo.	80 cc	Stationary	Same 6 mo later.
93	C	D.F.L.	24	8 yr.	102. 102.	120 100	Severe moderate	numerous 30	yes yes	yes yes	yes 0	yes yes	0 0	100 125	108 122	Rect. Pis. Bo-salp. imp. sl imp	entire L. entire L.	3 mo.	40 cc	improved	Sent home. Since died
94	C	R.E.H.	24	6 mo.	102. 99.	110 100	Severe Severe	numerous 20	0 0	yes yes	yes 0	yes 0	0 0	100 140	145 129	Tub. larynx advanc. Worse	R ✓ L. to 3 rib ant R to 3 L to 5 " "	4 mo.	102 cc	Worse	also had perineal abscess. Sent home.
95	C	W.C.B.	34	9 mo.	102. 99.	112 96	Severe moderate	60 10	yes 0	yes yes	0 0	yes 0	yes 0	120 150	135 145	Pleurisy recovered from	R. to 4 rib ant. R to 2 rib ant.	11 wk.	60 cc	gr. improved	Back at work
96	C	S.H.F.	47	14 mo	103. 100.	116 96	Severe Severe	40 60	yes yes	yes yes	yes yes	yes 0	0 0	80 100	124 134	Pleurisy Brain comp imp. Worse	entire right entire right	15 mo.	112 cc.	Stationary	Since died from brain comp.
97	C	M.C.	26	2 yr	101 99.	92 80	Severe moderate	30 35	yes 0	yes yes	yes 0	yes 0	yes 0	120 140	128 131	Bowel trouble Cured	L. to 3 rib ant. L. to 1 rib ant.	4 mo	78 cc	gr. improved	
98	C	L.L.F.	36	7 yr.	102 99.5	96 86	Severe Moderate	50 10	0 0	yes yes	0 0	yes 0	yes-6 0	80 85	108 110	Pleurisy Work Imp. Work	L. to 4 rib ant. L to clavicle	12 mo	95 cc	Worse	
99	C	C.O.P.	26	8 mo	102. 99.	96 80	Severe moderate	60 10	yes 0	yes yes	0 0	yes 0	0 0	140 200	125	Tub. larynx Pleurisy Cured imp	L to 4 rib ant L to 2 rib ant.	7 mo.	125 cc	improved	Back at work.
100	C	B.O.M.	24	2 yr	101 101.5	112 120	Severe Severe	8 30	yes	yes yes	yes yes	yes yes	0 0	110 105	120 118	Der. Tub. diarrhoea " "	L to 4 rib ant L to 4 rib ant.	6 wk	46 cc	worse	Sent home
101	C	C.C.	29	2 yr	101. 101.5	100 124	moderate moderate	30 20	yes yes	0 0	0 0	yes 0	0 0	? ?	107 ?	Heart murmur " "	L. To 4 rib ant L to 4 rib ant	6 wk	42 cc	Worse	Sent home on account of heart action.
102	C	C.K.	25	2 yr	102.5 100.	100 92	Severe Slight	numerous 10	0 0	yes yes	0 0	yes 0	yes 0	55 95	111 116	Indigestion improved	entire left entire left.	9 wk	63 cc.	improved	
103	C	E.B.M.	43	7 yr	100. 99	96 92	moderate moderate	20 3	0 0	yes yes	0 0	yes 0	yes 0	200 210	118 124	Digestive disorders improved	R to 3 rib ant R to 2 rib ant.	11 wk	82 cc	gr. improved	
104	C	J.H.H.	49	3 yr.	100 99.	100 108	moderate Slight	30 10	0 0	yes 0	0 0	yes 6	yes 0	105 115	138 139	Middle ear dis. Improved	Both apices L to clavicle	11 mo	96 cc.	Stationary	
105	C	W.W.W.	26	1 yr.	101. 99.	88 84	Severe Slight	35 10	0 0	yes 0	0 0	yes 0	yes 0	110 120	130 143	Pleurisy Cured	R. to 4. ant None	6 mo.	150 cc.	gr. improved	
106	C	T.M.N.	32	3 mo	101. 99.5	116 100	Severe moderate	numerous 50	yes 0	yes Small	yes 0	yes yes	yes 0	140 130	136 130	Pleurisy developed Cured	entire L entire L.	6 wk	42 cc	Worse	

Summary Class A. - 46 Cases		Cases	%	Average Before and After
Cough and Expectoration Dissapeared	in	35	76	
" " " Diminished	in	46	100	
Bacilla Dissapeared	in	41	89	
Weight Gained (max 18 lbs. min. 0 lb.)	in	44	96	130 - 138
Vital Capasity Gained (max 80 c in min 0 c in)	in	46	100	155 - 190
Temperature and Pulse Become Normal	in	44	96	
Time Treated (max 15 mo. min. 7 wk.)			-	4.5 mo.
Amt. Serum Used (max 205 cc min. 30 cc)				86 c.c.
Apparently Cured		35	76	
Gr. Improved		9	20	
Improved		1	2	
Stationary		1	2	
Worse		0	0	
Died		0	0	

Summary Class B. 28 Cases.		Cases	%	Average Before and After
Cough and Expectoration Dissapeared	in	3	11	
" " " Diminished	in	19	68	
Bacilla Dissapeared	in	8	28	
Weight Gained (max 19 lb. min. 2 lb.)	in	26	93	134 - 139
Vital Capasity Gained (max 70 min 5 cu in)	in	27	96	134 - 161
Temperature and Pulse Become normal	in	17	61	
Time Treated (max 16 mo. min 2 mo.)				6.2 mo.
Amt. Serum Used (max. 208 min 20 cc.)				75. c.c.
Apparently Cured		6	21	
Gr Improved		13	64	
Improved		8	28	
Stationary		0	0	
Worse		0	0	
Died		1	3	

Summary Class C. 32 Cases.		Cases	%	Average Before and After.
Cough and Expectoration Dissapeared	in	0	0	
" " " Diminished	in	18	56	
Bacilla Dissapeared	in	0	0	
Weight Gained (max 19 lb min 12 lb)	in	22	69	123 - 128
Vital Capasity gained (max 60 min 20 cu in)	in	25	78	110 - 127
Temperature and Pulse Become normal	in	10	31	
Time Treated (max 15 mo min 2 wk)				4.2 mo.
Amt. Serum Used (max 150 c.c. min 20 c.c.)				71 c.c.
Apparently Cured		0	0	
Gr. Improved		9	28	
Improved		5	16	
Stationary		6	19	
Worse		11	34	
Died		1	3	

CLASSIFICATION.—*Class A* represents those patients who, after thorough physical examination, microscopic examination of sputum, consideration of family and personal history, temperament, tractability and financial ability to refrain from work, we, in our judgment, supposed to have excellent chances for recovery.

Class B represents those who after the same examination, we could expect to see improve, but whose recovery was doubtful.

Class C represents more advanced cases. Nothing but amelioration of symptoms and distress was promised. This class was largely composed of charity patients.

many are in unfavorable locations and others are back at work. Whether a certain degree of immunity has been established, or whether the elimination of the tubercular products has been more certain, the fact remains, *serum patients do not relapse like those treated with creosote and other allied drugs.*

Furthermore, during the entire time that these 106 cases were being treated, but 2 patients had hemorrhage serious enough to warrant calling a physician, while 55 gave a history of having bled prior to the time of beginning treatment; 1 of these 2 above referred to—No. 55, Class B—was caused by violent exertion in a young man repeatedly cautioned and later ordered out of the office for disobeying directions, and the other occurred seemingly without provocation in a young man who was so slightly affected that his parents never believed there was anything wrong with his lungs.

Night sweats have been more easily controlled. During the weeks and months necessary for the contraction and cicatrization of small cavities, *the patients have remained free from distressing symptoms and have not shown the symptoms of relapse or involvement of new tissue.*

As a rule, I have observed that the expectoration materially increased during the first two weeks of treatment, and then rapidly diminished in the favorable cases. The expectoration has rapidly changed in character as well as in amount, becoming lighter, losing its pus character, and finally appearing as a gelatinous mass. In the far advanced cases or in *those with extensive cavity formation, this influence on the expectoration was usually negative.*

Length of Time to be Administered.—The injections have been continued in those cases reported as "cured" for several weeks, and in a few cases for months, following the disappearance of tubercle bacilli, the microscopic examination being frequently made during this time. In this class of patients no unpleasant symptoms have followed the long continued use of large doses. Of the thirty-five reported as "cured" in Class A, the average length of time the injections were given was four and five-tenths months, maximum fifteen months and minimum seven weeks.

Accidents Following Administration.—In about 50 per cent. of all cases treated a local erythema occurred over and around the point of injection, during the first week. In a small percentage this erythema became more general, and in three cases was well marked from the waist to the feet. After the first week no such local or general redness of the skin followed the injection. Local swellings at the point of injection, and occasionally at nearby joints, pain in the joints and itching of the skin were frequently complained of for the first few days. When enlarged lymphatic glands have been present, especially the cervical and axillary glands, these have invariably been found to enlarge and become tender during the first two weeks, and if not caseous, they have then gradually diminished in size and finally disappeared entirely. Especially was this true of Case No. 3, Class A, a child 7 years old, with slight consolidation, and when first examined presenting distinctly enlarged cervical and axillary glands. This boy fully recovered, the glands disappeared, and he has been so well this winter that his physicians advised his parents that it was not necessary for him to go South this year. This improvement in glandular involvement has been observed in all three classes.

The symptoms mentioned above are not serious, only annoying to the patient, and when he has been posted as to their possible occurrence he has made but little comment when arising. The only really serious symptom observed by the writer has been a sudden attack of syncope occurring in from one to five minutes following injections and lasting about two minutes. This has occurred in 5 per cent. of all cases, being accompanied by flushed face, followed by pallor, weak heart, pain in the back, nausea, and in one case violent vomiting. This, I believe, is due to the injection of the serum into a small vein, and not, as some have suggested, to the too often repeated injection at the same point. This distressing symptom passes off in a moment on placing the patient in a recumbent position and, so far as I can determine, has never been detrimental to the patient. In one case, No. 52, Class A, a man weighing 180 pounds, with good heart, this symptom was repeatedly observed.

On account of these local and systematic symptoms I have made it a rule to begin with a small injection .2 c.c., gradually increasing to .5 c.c., remaining here a few days and then gradually increasing to 1 c.c., rarely exceeding 2 c.c. at a dose, the injection being given daily in the loose skin above and back of the crest of the ilium; using a c.c. graduated syringe with the smallest size Green hypodermic needle. The use of such fine needles for serotherapy compels one to give the greatest possible attention to his instrument in order to keep the needle patent; hence the fine needle is not only more agreeable to the patient, but more liable to be rendered aseptic in order to be of service.

Serums Used.—Serums from three different manufacturers were used, the whole amount being approximately 8000 c.c. Having in the course of a very few months observed decidedly the best results from the use of Fisch's antiphthisic serum T. R., the others were discarded; altogether about 6000 c.c. of Fisch's serum were used. In justice to the manufacturers I must say that this product has invariably proven stable when properly handled, in but two bottles was cause for complaint found, due in both instances to infection from loosening of the stopper during transit.

Remarks.—The use of antistreptococcic serum in conjunction with antitubercle serum, in my hands has not proven of much benefit. Streptoccocci have disappeared in favorable cases without it, and in advanced cases have remained, no matter whether it was given or not. It has, however, in several cases seemed to temporarily do good.

I would particularly call attention to the large gain in vital capacity of these cases, the average gain in Class A being 54 cu. in., with a maximum of 80 cu. in. This gain is in great part due to the use of the pneumatic cabinet, which instrument has been used in all cases of diminished capacity, where high fever or other contraindication was not present.

Summarizing the 106 cases reported, without regard to classification we find:

Cough and expectoration disappeared in 38, or 36 per cent.

Cough and expectoration diminished in 83, or 78 per cent.

Bacilli disappeared in	49, or 46 per cent.
Bacilli decreased in	61, or 64 per cent.
Physical signs improved in	80, or 84 per cent.
Weight gained in	92, or 87 per cent.
Vital capacity gained in	98, or 92 per cent.
Temperature and pulse became normal in	71, or 67 per cent.

Average time treated 4.9 months.

Average amount serum used 77 c.c.

Apparently cured (no relapse)	41, or 39 per cent.

Greatly improved	31, or 29 per cent.
Improved	14, or 13 per cent.
Stationary	7, or 6.6 per cent.
Worse	11, or 10 per cent.
Died	2, or 1.8 per cent.

In conclusion, I wish to reiterate what I have said concerning medication occupying third place in the treatment of pulmonary tuberculosis, and do not place myself on record here unequivocally as a convert to serotherapy. I have been in no hurry to report my cases treated and have only presented this paper after having had eighteen months' time for observation: the conclusion being that while serotherapy for tuberculosis in general is still in an experimental stage, the results obtained from its use in the incipient cases certainly justify one in its continued use.

With the permission of the Chairman of this Section I propose next year to follow up this report with a detailed report giving the then present condition of all cases now classified under A and B. The C cases, with few exceptions, I expect will die during the coming year.

THE SUBJECTOSCOPE.*

OR SOME SUBJECTIVE VISUAL SENSATIONS.

BY HAMILTON STILLSON, M.D.

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In devising an instrument for the study of subjective visual sensations an attempt is here made to accomplish two objects: to settle some disputed questions concerning the nature of such sensations, and 2, to furnish a practical means for the autodiagnosis of disturbances or defects in the field of projection.

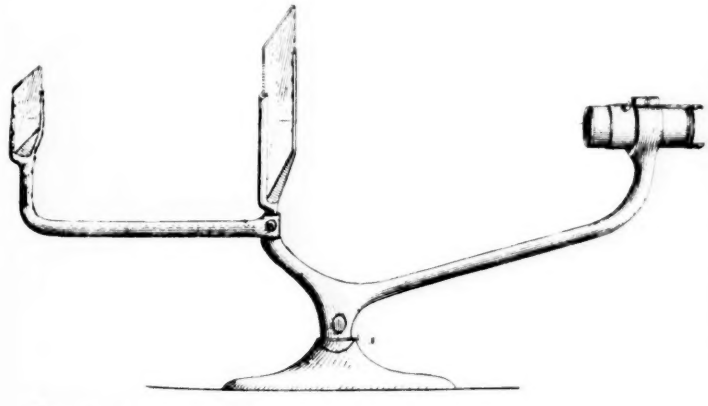
It is well, however, at the beginning of this paper to understand that Zehender's definition of subjective visual sensations is the accepted one. His definition is at variance with the definitions given in the Century, Standard and Foster's medical dictionaries, but it is nevertheless the most rational. For the production of subjective visual sensations—"Gesichtsempfindungen"—Zehender's definition requires the presence in the interior of the eye of real corporeal bodies.

Subjective visual sensations, therefore, differ from objective visual sensations in the fact that the latter owe their origin to corporeal things outside of the eye; they differ from hallucinations, "visions," and the like, since the latter owe their origin to disturbances of the central nervous organism and not to changes in the eye.

Phosphenes, electric stimulant flashes, etc., belong to subjective visual sensations since they owe their origin to a disturbance of the real elements of the eye, but they ought to belong to a sub-class of visual sensations, the main class being illustrated by muscæ volitantes. This latter is perhaps the most typical and familiar example of subjective sensations of the main class. A further refinement ought also to be made by classifying these sensations into the classes physiologic and pathologic. And while the instrument described in this paper, and which, for want of a better name, let us call the "subjectoscope," deals with both the latter named classes, it is toward physiologic subjective visual sensations that our principal experimentation will be directed.

It may be considered necessary in this introduction to apologize for the use of instrumental aids in examining visual sensations. Zehender prides himself on the fact that under favorable conditions he can experience all the known visual subjective sensations without instrumental aid, but some of the favorable conditions are "a snow bedecked landscape," "the half waking state in the twilight," "long and intense practice," etc., some of which conditions are always absent from some of us, and the majority of them render the daily office examinations of patients' fields of vision impracticable. Besides there is usually no gain in declining instrumental aid while viewing the field of projection. It is not any more to our credit or advantage by intense practice to train our eyes to see the Purkinje figures without aid than to look at these figures in a dark room by the aid of a moving flame held near our eyes. It was surely no detraction for Helmholtz to say that the easiest way to view muscæ volitantes is to look at a lamp flame through a pinhole in a card. Moreover, in studying the field of projection of patients most patients require considerable aid in viewing strange images whose cause they cannot understand, the knowledge of whose shape they would impart to the oculist.

The instrument in question was suggested to the writer on viewing a blue sky through a piece of blue glass. By such means the "fliegende mucken" (Purkinje), or rapidly moving bright globular bodies in the interior of one's own eye may be readily observed by anyone. I am not aware that any previous writer has called attention to the use of blue glass in this connection, though Jullien[1] discusses the question of recognition of fading or abortive syphilitic macules by viewing the suspected skin through blue glass, a diagnostic resource first announced by A. Broca in 1893. The instrument, however, is arranged so that other colors for the background besides that of blue may be used.



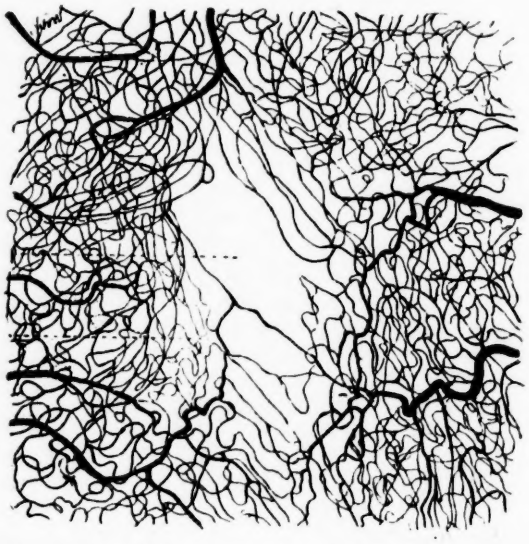
The instrument consists of a three-inch lens mounted in a short tube on a suitable stand having a clamp at the proximal end into which diaphragms having pinholes of two or three sizes may be inserted, and having, eighteen inches from the distal end, a clamp for holding plates of plain and colored glass and white cardboard, and having beyond the plate a mirror mounted on a swinging arm so arranged that the mirror may reflect light through the colored glass directly through the tube and lens to the eye, or, by swinging the arm, light may be reflected on white cardboard which may then be viewed by reflected light.

Experiment 1.—Remove the pinhole diaphragm, place the mirror in position for reflecting into the eye the blue sky through a layer of homogeneous blue glass, place the eye near enough to the lens that the light coming through the lens will be uniformly blurred or diffused. A homogeneous blue field will be disclosed, and on that blue field will be observed bright moving points globular in shape, having one side shaded by a crescentic shaped shadow. These bodies on the blue field will look blue but will stand out in relief, the center of each having a bright reflex. They flit through the field like

flying gnats, but appear most distinct at a certain plane in the field of projection and resemble in that respect the corpuscles of the blood when seen in a frog's tongue under the microscope. That is to say, they come into focus where they are distinct and then pass down or up out of focus where they disappear. Occasionally a perfectly blank one will flit into view, and some are larger than others. Some will swim more rapidly and circle more swiftly than others do. The vessels through which they flow remain all the while invisible, though by fixing the attention in a certain direction one may seem to discover the course over which as a rule some of the bodies pass.

What are these flying gnats—"fliegende mucken"? Purkinje[2], who, though but a boy in poverty and obscurity, in 1819 made himself at once famous by describing these objects and also by describing the appearance of the shadow of the retinal vessels in one's own eye, saw them without instrumental aid by looking into a cloud covered sky. He was unable to satisfactorily account for them; and it appears to me that some confusion has arisen not only wih Purkinje, but also with Zehender[3] in confounding these bright moving bodies with the bright waving bodies mentioned at the end of this experiment. Zehender thinks these "fliegende mucken" are reflected light from the red blood-corpuscles in the choroidal vessels. He thinks that as the corpuscles move in the choroidal vessels light reflected from these bodies comes forward and falls on the rods and cones of the retina, thus forming their image. He offers in proof of this fact that these floating bodies are seen best and most numerously in the center of the field, where the rods are most numerous and where the retinal vessels are smallest in size, but a number of facts disprove his theory. One of my patients with rupture of the choroid and with no rupture of the retina was able to see these flying bodies very distinctly in the field corresponding with the rupture of the choroid. The blow against the eyeball had been received near the inner canthus. There was a rupture of the choroid, 2dd. in length, crescentic in shape, the center of its convexity touching the outer edge of the disc. The other rupture was 3dd. in length, the center of its curve being in the region of the macula. The white sclera could be seen through the rupture, and the broadest portion became occupied by cholesterin. This patient, though possessed of two scotomata of crescentic shape could see these "fliegende mucken" throughout the entire center of the field of vision, the flying bodies seeming larger and more numerous at the portion of the field occupied by the scotoma than in any other portion of the field. The scotoma looked black on the blue background, and grayish white on a dark background. These rapidly moving bodies, therefore, must be produced by something in front of the retina, and if it be urged that in such a case they should produce nothing but a dark shadow like the moon in a solar eclipse, the reply may be given that the shadows of the vessels of the retina when viewed through a projectoscope are like transparent glass tubes having a shadow line along one side, giving a relief to the shadow of the vessel, so to speak. The apparent relief of the shadow of these moving bodies may be thus accounted for, and to account for the fact that one is occasionally blacker and larger than its fellows we have only to imagine one more opaque than the others. Surely Zehender's contention cannot explain the presence of the black ones. Black ones will not reflect the light. Moreover, these flying globular bodies are too large for blood-corpuscles, and they are too widely separated from one another to be blood-corpuscles in the retinal vessels. Their rate of flow is greater than that of the blood current in the capillaries. The diameter of a blood-corpuscle is .0072 mm., which is one-fourth the diameter of the capillaries. By viewing the smallest capillaries, as in Experiment No. 2, and comparing their diameter with the apparent diameter of the moving bodies, projecting them as nearly as possible to the same distance away, it will be seen that the apparent diameter is more than one-fourth more than the apparent diameter of the capillaries.

What are they then? Helmholtz[4], in his "Physiological Optics," thinks they are fat lymph-corpuscles. His opinion must bear great weight, but Helmholtz thinks that these lymph-corpuscles are visible only in the main trunks of the retinal vessels. The region of the macula, which alone views these moving bodies, has no large blood-vessels in the retina.



In Experiment No. 6 an attempt is made to show the lymph-spaces in the cornea, in Experiment No. 5, the lymph-spaces in the lens, and in Experiment No. 3, the lymph-spaces in the vitreous. (Sec. 5, p. 251, and 6, Vol. i, p. 210.)

Would it not be a more reasonable assumption to say that these "fliengende mucken" are the shadows of lymph-corpuscles, as they pass in the lymph-channels of the eye in such a plane as can be best viewed by the rods and cones?

We cannot close this reference to the "fliegende mucken" without referring also to Zehender's claim that they can be viewed by him with his eyes closed and in the dark. If they could be viewed in such a case, my contention that they are the shadows of the lymph-corpuscles would come to naught. Still, if they could be seen in the dark, Zehender's contention also would come to naught, for in that case they could not be reflections of the corpuscles of the choroid. What Zehender sees in the dark with his eyes closed is not the "fliegende mucken," although they resemble closely the "fliegende mucken" in some respects. Perhaps every observant person has noticed that on waking from profound slumber and gazing into a dark room numerous small points of silver-white light arranged somewhat symmetrically, grouped in the center of his field of vision, will wave and flicker before him. They do not flit and fly, but each waves and flickers. On closing the eyelids these points will continue for a time in the same location and with the same color and shape as before. But these wav-

ing points are not globular. They have no distinct outline. They do not move about the field like detached bodies, do not flit nor fly, they simply glint and glimmer and wave. What are they? I think they are localized, intensified idioretinal light. I think they are of the nature of minute localized points of "phosphenization," to coin a term; they are produced in all probability by the pressure of blood in the choroidal vessels against the rods and cones somewhat in the manner of phosphenes produced by the finger against the eye. They appear only when the ocular vessels are suddenly and unusually engorged with blood, and disappear when the engorgement passes away.

The above-described waving points are not flimmer scotoma, scotoma scintillans, amaurosis partialis fugax, teichopsie, though this latter scotoma may be seen in the dark with the eyes closed. In the flimmer scotoma the glimmering begins in the center of vision and spreads outward like an enlarged circle, except that the line that forms the circle is zigzag and there is amaurosis over the portion of the field that the circle has passed. Moreover, flimmer scotoma seems to be more a symptom of disturbances of nutrition of the central nervous organism than of local disturbances of the eye. It is nearly always accompanied by a sense of vertigo. (See reference No. 7, p. 64.)

Experiment No. 2.—Insert the blue glass in its position as before, place the diaphragm with the small pinhole into its place, reflect the light of the sun, or an acetylene-gas flame placed twenty feet or farther away, look through the pinhole attentively and move the diaphragm gently to and fro, or move the head to and fro, or move the mirror to and fro slightly and more or less rapidly. Fine branching lines like transparent roots of a plant will be seen converging from the peripheral, many of them anastomosing, meshing themselves around the center of the field of vision. In a yellow light these branching lines are pinkish-white with a bright line along their center and dark lines along their edges. On a blue background they are clearer cut and more distinct, but blue in color. They are stationary when the eye is still, though they seem to move with the movements of the disc or of the source of light. They seem larger when the source of light is at a distance, or when they are projected into the distance or when the pinhole is large. They seem smaller, though more distinct, when the pinhole is small. W. C. Ayres[8] (Bd. xii, p. 29) who followed up Helmholtz' suggestion, found that these lines seem larger when the iris is under the influence of a mydriatic. What are these lines? They are undoubtedly shadow images of the blood-vessels of the retina. Purkinje was the first to describe them, in 1819 in this now famous thesis$_2$. His first described method for seeing them was to look at a cloud-bedecked sky and wave before the eyes the outstretched fingers of the hand, to and fro. To me they seem quite indistinct by this method. His second method was to wave a candle-flame near and below the eye while gazing into an otherwise darkened room. The lines look larger by this method, though they resemble mere black shadows and only the large blood-vessels can be seen in this way. Modifications of the above mentioned experiments have been made by J. Muller[8], Ayres[8], Fick[10], Becker[8 12] (Bd. xxvii pp. 1 to 20; Bd. xxvii, 1881). Dimmer[11] (Bd. xxiii, p. 82), Meissner[13], Reute[14] (Bd. i, p. 558) and others. For instance, Helmholtz was, I believe, the first to render the definition of these lines distinct by searching for them through a small pinhole in a moving card, while looking at a lamp flame; and he was the first to observe that the larger the pupil or hole in the card the larger the vessels would appear, though less distinct.

W. C. Ayres[8] (Bd. xiii, p. 13) used the bright reflection from a gold ring or a silver spoon flashed near the eye; but in the author's experience the vessels can be traced more nearly to the macula and can be made to appear with more vivid distinctness by the use of the blue glass in the projectoscope.

So far as I can dicover, no previous writer has mentioned the fact that these blood-vessels may be seen with the eyes closed. Face the sun, close the eyelids, turn the eyes upward, and forcibly and rapidly turn the eyes repeatedly to the right and to the left. There will appear on the red background dark branching lines that resemble the lines seen in the Purkinje candle flame experiment. The main trunks of the blood-vessels are brought into the field of projection better in this way than in the other experiments mentioned.

Experiment 3.—Remove the blue glass, focus the light to the interior of the eye, insert the pinhole disc, then without oscillating the diaphragm, direct the eye and if necessary the pinhole just off the point of light. Against the background of half illumination curved and twisted channels anastomosing can be seen. These channels lie in different layers and by slightly moving the eye to and fro then holding it still a swinging motion can be imparted to some of the different layers. By means of this movement a parallax of the different layers can be made out. One of these layers seems to me to be always stationary. They are seen only in the center of the field. Their caliber is of about equal diameter throughout. Their course and the walls of the channels are quite distinct. That they are not on the surface of the cornea is readily proven by blinking the lids until a little of the oil or tears is deposited upon the cornea, then by simply moving the diaphragm the parallax of the tears and the channels can be made out. All the channels will thus be found to lie behind the cornea or at least behind its surface.

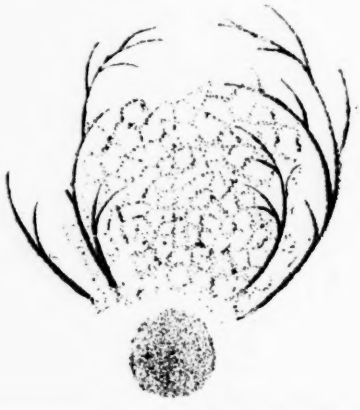
Experiment 5.—Now focus the light on the lens of the eye, use a very small pinhole, remove the eye far enough away from the pinhole to make the pinhole appear like a star; an object will be seen very much resembling the microscopic appearance of the lens of the eye; that is to say, a star-shaped body having four or five main arms with innumerable branching lines joining the main ones will appear. This star-shaped system of lines can also be seen by looking through a very small pinhole held four or five inches from the eye. That this system of branching lines is not made by the object lens or by the refrangment of light at the edge of the pinhole can be proved by rotating the object-lens or the pinhole disc on the line of vision as an axis. The striations produced by the object lens or by the disc can be made to eclipse the striations produced by the observer's eye. What is this star-shaped system of channels? It is evidently the connective tissue structures and lymph-channels of the crystalline lens. In proof of this it may be asserted that these channels or radiating lines change their relative positions slightly under the act of accommodation in somewhat the same manner as do the double images of Purkinje[6] (Vol. i, p. 172, figs. 43 and 44).

Experiment 6.—If in the above experiment the eye be so turned that only the front surface of the cornea be illuminated by a point of light, the very slightest opacity of the cornea will be discoverable; various dots and lines, the dots having various shapes and radiations, the lines having various radiations, can be discerned, and these dots and striations are so uniformly present

that they seem to constitute what may be termed a normal opacity of the cornea. Some of them very much resemble spots in the cornea of the frog, stained so as to show the positive picture. (See 6, Vol. i, 146.) These opaque stellate cells can be best viewed, however, by looking at a full moon through a three-inch lens held eighteen inches from the eye and then partially intercepting the rays by means of a card, or better still, a piece of blue glass. The stellate cells will be seen to push forward on the card and accumulate at its edge. Images of other bodies in the cornea and on the cornea may also be made to show themselves by that means. The spots on the moon will leave their impression on the picture, but the opacities on the cornea can be differentiated from other opacities by observing that they move when the lids move; those in the lens in the hand will stay still when the observer's eye is rotated.

All opacities of the cornea produced by facets, leucomas, infiltrations, etc., are exhibited with great distinctness by this partial oblique illumination of the cornea.

Experiment 7.—Now, turn the eye directly toward the light, focus the lens so that complete fogging will be produced by the lens, use the disc with the small pinhole and gaze intently into the flame; in the center of the field will appear three sets of round bodies. Those of the first set are closely packed together in a layer, but they are apparently not quite hexagonal in shape though somewhat flattened. In Fig. 3, taken from Zehender, an attempt has been made to represent one set of these bodies between the blood-vessels. The large round body there depicted represents, poorly, the appearance of the entrance of the optic nerve or "blind spot."



Against a kerosene flame they seem a pale yellow. Scattered among them are disc-shaped bodies that may be globular but look like red blood-corpuscles when seen under the microscope. The outside walls are dark blue. Lining the walls is a layer of a pale yellow color, then comes a dark blue line enclosing a central portion of pale yellow. These globular bodies are scattered among the flat stippled bodies mentioned above and seem nearly but not quite in a single layer. They are all of nearly the same diameter, about as wide as a medium-shaped blood-vessel. All these disc-shaped bodies are stationary and keep relatively the same position with reference to each other, although a slight parallax can be produced by movements of the eye or card. A third kind of globular body can be seen, which, however, can be made to float about more or less freely and can be seen to cause eclipse with the disc-shaped stationary bodies. What are these globular or disc-shaped bodies? The flat stippled bodies were thought by Zehender to be the image of the pigment cells of the choroid (sic). They cannot be such. They are too large and are not of the right shape and lie in front of the retina instead of behind it, or at least in the front layers of the retina. Zehender pictures them stippled between the blood-vessels, but a careful examination will show that the stippling extends over the blood-vessels in places. The second stationary globular body can readily be seen to be just in front of the retinal vessels, for by using an extremely small pinhole these globular bodies can be seen to be really much larger than they at first appear. A ring halo can be seen far out from their center, not only spreading over the image of their blood-vessels, but by a slight movement a parallax can be developed to show that they lie just in front of the blood-vessels. The third set that move about freely can be readily demonstrated to be in the vitreous. What are these three bodies? The last-named floating bodies are doubtless portions of food floating in the vitreous and while in small quantities may be considered normal, in large quantities become the vitreous opacities. The second-named globular bodies are doubtless in the hyaline membrane and in small numbers may be considered normal, but in large numbers constitute the opacities seen in hyalitis. The stippled bodies which Zehender called the hexagonal cells of the pigment layer and pigment dust—"pigment staub"—are doubtless in the retina, possibly in one or the other of the granular layers of the retina. It seems incredible to me that "pigment staub" lying behind the rods and cones could be thus viewed.

Experiment 8.—Remove the pinhole diaphragm, remove the colored glass, insert the white card, adjust the mirror so as to throw the light on the surface of the white card, place your eye very close to the lens, gaze intently into the center of the white card and rapidly press the finger point or a lead pencil tip against the eyeball; at first dark pulsating bodies will appear scattered around the peripheria of the field, four or five bodies pulsating synchronously with the pulsations of the heart. By a little practice these may be made to appear without the pressure of the finger point on the eyeball, and by still further practice branching lines from these pulsating bodies may be seen to approach one another. These must evidently be the shadows of the large blood trunks, there being in Ranvier's[15] preparation of the circulation of the blood in the retina five main blood-vessels apparent in the injected specimen of the blood-vessels of the "yellow spot" (see also 6, vol. i, p. 172). By great patience and practice a mesh resembling a crown of these vessels can be discovered around the point of fixation.

It is to be remarked that neither by this method of viewing the system of blood-vessels in the retina, nor by that mentioned in Experiment No. 2, nor by the preparation of the retina for microscopic examination can any vessels be discovered at the region of the fovea. It should be remarked also that although the blood-vessels may be seen to pulsate in the manner just described, the blood current itself cannot be discovered, Meissner to the contrary notwithstanding.

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MODERN TREATMENT OF FRACTURES.*

BY EDWARD A. TRACY, M.D.

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In this paper the subject of fracture treatment shall be limited to a consideration of the principles that apply to the treatment of fractures in general, and of the materials best adapted to their treatment in consonance with these principles.

The term "fracture" as used, implies a broken bone. A bone can be broken, the fragments regain an accurate reapposition and unite without a callus. So that a callus is not necessarily in evidence after a fracture. Manley of New York, a surgeon of vast experience with fractures, has repeatedly observed and noted this fact, termed "primary union." The *sine qua non* for primary union in a fracture is accurate reapposition of the fragments and fixation. Primary union in fracture is exceptional. It probably occurs only when there is no, or but a very temporary, displacement. Displacement in fractures is the rule. When it persists, there are the genetic factors for callus production present. The more displacement, the more these factors are called into action, and the greater the resulting callus.

From the foregoing it follows that the duty of the surgeon in attendance on a fracture case is to get the fragments into as accurate reapposition as possible, and provide an efficient and safe fixation for them. Nature does the rest.

The necessity for fixation in the treatment of fractures, strange to say, is not universally admitted. The celerity with which fractured clavicles and ribs unite, and for which fixation is ordinarily impossible, is urged by some surgeons as an argument for the non-use of fixative appliances. Broken collar-bones and ribs with displacement unite, it is true, but *always with deformity;* the surgeon uses fixative apparatus to *prevent* deformity. Some surgeons have treated fractures of the tibia, and of the radius (Colles') without apparatus. In these cases, however, there was no tendency to displacement, and, to coin a term, physiologic fixation was present. In these cases, therefore, the principle of fixation was not violated; but, in every case, let it be understood that mechanical is superior to physiologic fixation.

There is one fracture best treated without any fixative appliance; that is, fracture of the neck of the femur in the aged. Careful attention to the nursing of such patients is all-important. It is paradoxic, but true, that the best surgical treatment of this fracture is purely medical. Apparatus, other than a few sand-bags, is cruel and harmful. With the vast majority of fractures, comprising all others but those of the hip in the aged, mechanical fixation, where it can be obtained, prevents or limits deformity, hastens union, and it therefore always indicated.

In fractures involving the joints, there is not unanimity among surgeons as to the time for applying passive motion. Some surgeons claim it is injurious before the fourth week, and even later. No set time should be given. The indications of each individual case should be followed. Passive motion is employed to prevent adhesions in or about the joint. It is harmful to an inflamed joint, and therefore should be cautiously applied—not enough to increase the synovitis, and yet sufficient to prevent adhesions. The timely and right application of passive motion is imperatively called for in the treatment of fractured joints to restore them to their functions.

While speaking of passive motion to prevent adhesions, a word about massage is in place. Massage is useful to aid in the nutrition of those parts which suffer from functional inactivity in consequence of the fracture. It is also of use in the absorption of exudation, tissue hemorrhage, etc., caused by the injury. It is useful, generally, to employ massage daily, commencing a few days after the injury. In this, however, as in the application of passive motion, the indications of each individual case should be followed.

The materials used for producing fixation are various. Plaster of Paris is considerably used for this purpose. The fixation produced by it is fallacious. While outside the limb appears as rigid as a stone wall, inside the broken bones can wobble about, because of the cotton batting between the limb and the "cast." Subsidence of swelling, and later on, tissue atrophy, contribute to the misfit. This is the cause of the deformities so frequently met with after the plaster-of-Paris treatment of fractures.

The scientific treatment of fractures to-day demands that the surgeon mould on the patient a splint made from a plastic material, and applicable next to the skin. By this method the best possible fixation is attained, and the surgeon has the limb under control; at any time he can inspect it by simply removing the retaining bandage—a matter of a moment or two. There are two plastic materials that can be so used. One is gummed felting, the other, wood-fiber splint material. With the felting, heat is the agent used to render it plastic. Water renders the wood-fiber material plastic. Wood-fiber material is preferable, because lighter, cleaner and cheaper, and in compound fracture cases it permits of powerful antiseptic treatment of the splinting.

In the treatment of fractures at one time, and that not so very long ago—it was deemed necessary by many leading surgeons to apply over the broken limb a roller bandage before the splints were applied. To do so to-day would be malpractice. What was once deemed by eminent surgeons a cardinal part in the treatment of fractures is in oblivion to-day. To-day surgeons teach the application of plaster of Paris in the treatment of fractures. It is not necessary to be a prophet, nor the son of a prophet, to foresee that the plaster-of-Paris roller will partake of the oblivion of its congener, the primary roller; and this because a more scientific method of treatment is demonstrable, and because the defects of plaster treatment are manifest. A prime defect, the insufficiency of the fixation produced, has been mentioned. Sequential to this are numberless deformities, readily found among hospital patients. Its danger as a primary dressing in many fractures causes it to be avoided in such cases. It prevents the surgeon from inspecting the fracture, and from employing massage and passive motion, which the scientific treatment of such cases now demands. These defects condemn its use by the practical, progressive surgeon. The lesser evils of its use are the discomfort to the patient on applying it, and on removing it; the discomfort of its weight; its dirtiness, necessitating in well-appointed hospitals a "plaster-room."

The only scientific way of applying plaster of Paris is in the form of splints; moulded on the limb and retained by a bandage. The writer discarded this method several years ago, because of the advantages

*Read before the Chelsea (Mass.) Medical Society, Feb. 16, 1899.

possessed by wood-fiber splinting as a fixative appliance in all fractures where fixation is possible.

DOUBLE SYNCHRONOUS AMPUTATION.*

THREE CASES ON LOWER EXTREMITIES.

BY THOS. W. HUNTINGTON, M.D.

SAN FRANCISCO.

This report is made for the purpose of emphasizing the value of methods recently adopted in combating surgical shock. The circumstances which usually attend a crush of such a character as to necessitate double amputation usually entail active and prolonged hemorrhage. As a rule such patient must be transported a considerable distance, often many miles, before skilled attention can be secured. Preliminary efforts at hemostasis are made hastily and in most primitive fashion, by persons untrained and often unbalanced by the exigency. Improvised tourniquets are so adjusted as to admit of their being displaced downward, whereby their efficiency becomes totally annulled; and curiously enough, a second attempt in the same direction is rarely made. Accordingly, as a rule, the surgeon is confronted by a patient who is pulseless, or nearly so, cold, and in a profound state of collapse. To defer amputation until resort may be had to reactionary measures, though altogether unsurgical, was formerly advocated by high authority; but such a policy seemed not to find justification as attested by rates of mortality. Until recently the death-rate in this class of cases, particularly where the lower extremities were involved, was enormous.

The statistics bearing on this subject are not voluminous. Agnew has reported 74 cases of synchronous amputation by various surgeons, including the upper and lower extremities. Of these, 36, about 49 per cent., died, and 38 recovered. Eliminating all except amputations of the lower extremity, there remained 55 cases, of which 33, or 60 per cent. died. Of 11 double amputations performed and reported by John Ashurst, Jr., 7, or 63 per cent. died and 4 recovered.

During the past fifteen years I have done 9 double amputations of the lower extremities, all for traumatism. The first 6 comprised 1 double thigh amputation and 5 of the legs. Of these, 4, or 66 per cent., died and 2 recovered. The last 3 cases, 1 of both thighs and 2 of the legs, all recovered. The mortality in the 11 cases is 44.4 per cent. It seems but a fair presumption, and my personal conviction is, that had the same measure been adopted in the six earlier cases as in the last three, the mortality-rate for the series would have been materially lessened.

The following is a brief history of the last three cases:

R. W. B., aged 55 years, a brakeman, was injured at Galt, Cal., Feb. 22, 1897. The front wheels of a locomotive passed over both legs. He was admitted to the Southern Pacific Hospital three hours later, having been transported about thirty miles. The clothing, blankets and mattress accompanying him were saturated with blood. The patient was pale and the radial pulse could scarcely be felt. Having been advised of his coming full preparation had been made to meet every requirement. Before moving him from the stretcher twenty ounces of normal salt solution were introduced subcutaneously and efficient measures adopted for control of hemorrhage. On examination, both feet and ankles were found to be hopelessly crushed and immediate amputation was determined on. During the procedure resort was had to infusion of salt solution several times, about two quarts being used in the aggregate. At the close of the operation the patient's condition was apparently more encouraging than when he entered the hospital. He gradually rallied and within twenty-four hours assumed something like his normal condition. In spite of our best efforts both wounds sloughed extensively and before repair was well established two sharp secondary hemorrhages occurred in one stump. Nevertheless, he went on to an excellent recovery and was well at the end of four months.

F. A. S., also a brakeman, aged 23 years, was injured at Suisun, Cal., Nov. 23, 1898, both legs being hopelessly crushed beneath the wheels of a locomotive. He arrived at the above-named hospital three hours after the injury, attended by Dr. Downing of Suisun. The hemorrhage had not been excessive but still was sufficient to entail profound shock. Similar measures to those above described were at once employed and both legs were immediately amputated, the left four inches below the knee, and the right at the knee-joint. More than two quarts of normal salt solution were introduced subcutaneously prior to and during the operation. The patient responded promptly and reaction was established within a few hours. Here also both stumps suppurated. The later history was complicated and recovery delayed. He is now, I am informed, well and waiting for the adjustment of artificial limbs.

N. M., a laborer, aged 25, was injured on Nov. 27, 1898, early in the morning, and he lay on the ground unattended for three hours before being discovered. Both legs from the knees to the ankles had been crushed into a shapeless mass by a freight train. He reached the hospital, eighty miles distant, at 7 p. m., fifteen hours after the injury. On examination it was found that not the slightest effort had been made to prevent the loss of blood. In spite of this fact he was conscious and could speak rationally. A slight impulse could be felt at the wrist. Prompt administration of salt solution was followed by general improvement, and though his condition was regarded as altogether hopeless, immediate amputation was decided on. In exactly one hour from his arrival at the hospital, both thighs were amputated near the middle point and proper dressings applied. I mention this item as more than probably an important factor in the successful termination of the case. It was estimated by my assistants that more than four quarts of salt solution were introduced during the procedure. The subsequent history was a repetition of experiences had in the former two cases. Recovery was slow, but he is now well.

It is proper to say a word with reference to the failure to secure asepsis and rapid repair in all of these cases. It must be remembered that we had to deal with wounds of a most unfortunate character. Tissues were ground to a pulp and thoroughly impregnated with filth. The apparent requirement for rapidity of action forbade anything more than formal and superficial preparation and the presence of germ infection under such circumstances would seem well-nigh inevitable. Moreover, if it be urged that all the improvement in the mortality-rates, shown during the past few years in this connection, may be attributed largely to asepsis and rapid wound healing, it will be seen that the cases above reported furnish no basis for such an argument.

* Read at the Twenty-ninth Annual Meeting of the Medical Society of California, April, 1899.

DR. WARREN B. OUTTEN will soon have ready for the press a volume with the title, "Man's Inherited Martyrdom. a Fitful Study of Degeneration."

CYST OF PANCREAS FOLLOWING TRAUMA.*

BY J. VAN DER LAAN, M.D.
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Growths, malignant or benign, pressing on or involving the excretory duct of this gland, thereby causing retention of its physiologic secretions with probably cystic distension of its capsule, are excluded from consideration in this paper; and it is proposed to limit the discussion to such cysts of this organ as are preceded by a history of mechanic violence in this region, and offer strong presumptive evidence of being due to such violence.

That this gland, lying as it does, deeply in the upper abdominal zone and apparently well protected from mechanical injury, should at times be subject to violence, which may so seriously interfere with its normal functions as to materially affect the health of the subject, seems, on superficial examination, quite improbable. On little reflection, it will be noted, however, that under favorable conditions, when the stomach is empty and the body is in a position whereby the abdominal muscles are relaxed, a severe blow, fall, or impaction at this point between two opposing forces may so affect the pancreas as to crush or bruise its structure, rupture its main or lesser ducts, dislocate it, or displace part of the gland, and, if the displaced part forms an acute angle with that normally situated, partial or complete obstruction of its duct at this point is inevitable.

Pancreatic cysts of the above etiology, Senn regards as invariably true retention cysts, whose contents, when recent, is pure pancreatic juice, which in process of time, may undergo physical and chemical changes, by reason of inflammatory processes of the diseased organ in whole or in part.

In recently formed cysts, the sac is thin and delicate, especially so when greatly distended or of rapid development. Its outer layer consists of peritoneum, its inner is soft and smooth. In old cysts, where the cyst wall has undergone various inflammatory and other changes, it is apt to be hard and thick, and may become cartilaginous or ossified.

The important and practical subjects of diagnosis and treatment require painstaking and, ofttimes, prolonged consideration, especially so when an attempt is made to differentiate this lesion of the pancreas from other conditions not infrequently acting within this region of the abdomen. Solid growths in this neighborhood, as a rule, present such differences in their physical characters that they need not be considered as offering any real difficulty in diagnosis. The diseases more apt to give trouble in point of diagnosis are: 1. Cystic disease of the gall-bladder—hydrops fellæ vesicæ. 2. Ecchinococcus cyst of the liver, spleen or peritoneum. 3. Localized peritonitis with effusion. 4. Ovarian cystoma. 5. Aneurysm of the abdominal aorta, or mesenteric vessels. 6. Enlargement of the lymphatics with cystic formation. 7. Hydronephrosis and pyonephrosis. 8. Cystic disease of kidneys or suprarenal capsules.

Inflammatory exudates, either with or without the formation of pus, will seldom give difficulty in diagnosis, being differentiated from the non-inflammatory formations, here, as in any other part of the body, by the usual signs of inflammation, fever, pain, etc. It is possible, however, that pus may be found without giving rise to elevation of temperature, as for instance in the case of Walsh†, but such occurrence is so unusual that it need not be considered, and when found, treatment would be identical.

It is exceedingly important to differentiate pancreatic cyst, whether recent or of slower development, from malignant disease in this region. The most important factors in a differential diagnosis are: 1. The history of the case, in one, preceded by injury or attack of colic—when due to impaction of a calculus in the pancreatic duct—in the other absence of such injury or attack. 2. By the shape and character of the growth—being large, usually distinctly fluctuating and commonly monolocular in the one with considerable mobility, and smaller, often multilocular, rarely distinctly fluctuating and more or less fixed in the other. 3. By the rapidity of the growth—a pancreatic cyst attaining in a few weeks the size which even in malignant disease would require many months. 4. By the effect it produces on the general organism, impairing health and nutrition, in case of cyst, little as compared with malignant disease.

1. Enormous distension of the gall-bladder—hydrops fellæ vesicæ, such as are recorded in medical literature, where the cyst occupies the greater part of the abdomen—must of necessity offer great difficulty in diagnosis. With a reliable history of the case, gall-bladder distension will be found to have started in the right hypochondrium, whereas pancreatic cyst makes its appearance first in the left hypochondrium or epigastric region. In gall-bladder disease, the colon is usually anterior, in pancreatic cyst below and in front of the growth.

2. Hydatid or ecchinococcus cysts of the liver, spleen or peritoneum are slow in their progress, and have no history of preceding injury or attack of colic; however, in case of slowly-developing pancreatic cyst from partial obstruction of the duct of Wirsung or some of its branches, and where the cyst wall has undergone proliferative changes, it will be impossible to arrive at a definite diagnosis. This is of minor importance, however, for both diseases require practically the same surgical treatment.

3. Localized peritonitis with effusion, when met with in this region of the abdomen is to be differentiated by the history of acute peritonitis—pain, vomiting, fever, probably constipation and tympanitis, often preceded by some definite lesion of one or more viscera.

4. Ovarian cystoma, when large and not accompanied with an intelligent history, is most difficult to differentiate from pancreatic cyst, as is proven by able and painstaking surgeons, who have operated on pancreatic cyst for ovarian cystoma and only discovered their mistake during the process of the operation. Ordinarily there need be no difficulty in arriving at a satisfactory solution, especially when an intelligent history of the case is obtainable. The position of the abdomen first invaded, displacement of colon, presence or absence of growth by vaginal touch sufficiently differentiate between the two diseases.

5. From aneurysm of the abdominal aorta or mesenteric vessels pancreatic cyst is known by transmission of the aortic impulse in only one direction, which impulse will entirely disappear when the patient is made to assume the genupectoral position. Moreover, aneurysmal tumors may be made smaller by compression and usually give the "bruit" on auscultation, both of which signs are absent in pancreatic cyst.

6. Enlargement of retroperitoneal lymphatics with cystic degeneration will scarcely offer difficulty in diagnosis, as the fixed location, nodular character, comparatively smaller size, and except in extremely rapid malignant disease, slowness of growth, with probable evidences of similar changes in neighboring lymphatics or other

* Read before the Michigan State Med. Soc.
† Medical News Dec. 30, 1893.

tissues will sufficiently differentiate between the two conditions.

2. Hydronephrosis, pyonephrosis, cysts of the suprarenal capsules, may offer difficulty in diagnosis, but all of these conditions are apt to develop from the side and extend toward the median line, are usually situated lower down, and, in case of hydronephrosis and pyonephrosis, are preceded by a more or less definite history of kidney lesion or calculi.

Of the most characteristic symptoms of pancreatic cyst, such as are of a size to be operable, the following deserve attention: History of an injury in this region or severe attack of colic; smooth globular cyst, certainly fluctuating when of recent date, and appearing in the epigastric or left hypochondriac region, crowding the stomach up, displacing the colon downward, following the respiratory movements slightly; skin of the body of a peculiar dirty sallow color; little if any pain; no very serious impairment of nutrition, except as due to digestive derangement occasioned by the pressure of the growth.

Given a case answering in the main the above description, what is a physician to do? Such a case demands a celiotomy, even if the diagnosis rests between pancreatic cyst, hydrops fellæ vesicæ, ecchinococcus of the liver spleen or peritoneum, ovarian cystoma, cysts of the kidney or suprarenal capsule—and any and all of the conditions require the same treatment, at least in so far as an exploratory laparotomy is indicated.

Herewith I append the history of a case of pancreatic cyst which came under my treatment in the spring of 1896, and of which the following are the more salient points:

On December 3, 1895, I was called to see J. D. J., aged 9, whose father related that the boy while coasting down a steep hill had fallen from his sled, and, when lying on the ground was run into by the sled of his playmate, which forcibly struck him in the region of the stomach, knocking the unfortunate boy "out of wind." He was removed to his home, about three blocks distant, where I found him some two hours after receipt of the injury. He was still profoundly shocked, complained of much distress in the region of the stomach and umbilicus and was vomiting. There were no signs of internal bleeding, and nothing to my mind required operative interference. There was no bloody urine, bowels moved next day, but nausea and vomiting continued; fever, if any, was slight; no evidence of peritonitis. Gradually vomiting eased up, but his general nutrition remained impaired.

I did not see him again after December 24 until March 31, 1896, when the father brought him to my office to get my opinion concerning a large tumor which had appeared about three weeks before, and was rapidly growing. The abdomen was markedly enlarged by a smooth but tense growth in the left side of the epigastrium, which gave unmistakable evidence of fluctuation. The tympanitic colon was recognized below, the stomach resonance above it; breathing was short and largely costal; heart somewhat displaced upward, and the tumor appeared to be influenced by the respiratory rhythm. The boy was still pale and looked ill, no rise of temperature, appetite impaired, food causing distress from distension, which was promptly relieved by vomiting. The tumor was not painful to the touch, nor had it given evidence of pain during its rapid growth.

Remembering the accident of the preceding December, the rapidity of its growth, its position, physical characteristics, and its surroundings, a provisional diagnosis of pancreatic cyst was made. Next day, April 1, with my friend, Dr. F. W. Garber, the boy was visited at his home, and again carefully examined. To make matters more definite, it was proposed to withdraw some of the fluid contents of the cyst, which might give valuable information as to the nature of the growth. Accordingly a hypodermic needle, properly sterilized, was introduced at the most superficial part of the cyst, and about 2 c.c. of fluid withdrawn. On arriving at my office, part of the contents of the hypodermic syringe was added to a solution of boiled starchwater, and Fehling's test applied after a few minutes. An abundant reduction of the suboxid of copper proved that a large part of the starch solution had been converted into grape sugar, and that whatever else the cyst contained, it was certain that the amylolitic ferment of the pancreas was actively present. There was now, therefore, no longer any reasonable doubt as to the nature of the cyst, and operation was agreed on for the next day.

About three hours after we had left the home of the patient, his father came to my office, telling me that the boy was feeling very ill, had had a chill, was vomiting, had great pain in the lower part of the abdomen, and that the tumor had disappeared. On arriving at the house, I satisfied myself that the tumor had actually disappeared, found the abdomen painful, the boy vomiting a greenish substance, temperature 102—in a word, all the symptoms of an acute peritonitis were present. It at once dawned on me that the delicate cyst wall had given way at the puncture of the needle and the cyst had thus emptied itself within the peritoneal cavity.

What to do was the important question. We had received absolute proof of the activity of the fluid now free in the peritoneum, by its ready digestion of the starch. What would the effect on the peritoneal lining be; would it disintegrate and partly digest it? The results of experiments as stated by different authors are conflicting, and besides, was not the patient even now infected, as shown by the unmistakable signs of peritonitis? Without interference, there was every reason to believe that a fatal termination could be reasonably expected; and, if the patient should be so fortunate as ultimately to escape with his life, in what condition would the contents of the abdomen come out—would not some of the organs be permanently crippled by adhesions and malpositions? Such were the important questions clamoring for a prompt answer. A hasty consultation was called, and it was decided to at once interfere; not at this time to cure the cyst, but mainly to save life from destructive peritonitis that was already fairly under way.

Preparations for immediate operation were hastily made, and in the midst of unfavorable surroundings the operation was begun, unfavorable in all respects, except that we were reasonably sure that the abdomen and immediate surroundings were fairly free from sepsis. On opening the abdomen not a trace of cyst wall could be discovered, as we had surmised, and, after carefully draining the peritoneum of its fluid and flushing the abdomen with large quantities of hot sterilized saline solution the abdominal wall was closed.

It healed by first intention. Nothing eventful occurred except the wounding of the stomach, which wound was immediately closed by suture and as a means of further protection a patch of omentum was added—and except vomiting of blood once or twice the next day recovery was uninterrupted. It was hoped that the cyst wall at the site of rupture had become sufficiently irritated to cause adhesive inflammation and thereby close the rupture. In this expectation we were not disap-

position, for just three weeks after the first operation the cyst made its reappearance at the original site. It was now proposed to make an attempt to cure the cyst. Accordingly the boy was again anesthetized, the incision made in the same place as before, and the abdomen opened. A great deal of thickening of the omentum was found, with adhesion to the abdominal wall at the place of first incision. No attempt was made to loosen the gastrocolic omentum, but an incision was made through it down to the cyst wall and the cyst wall was secured in the usual way—pulling it well into the wound, introducing a canula, emptying the cyst in this manner, and sewing it to the edges of the abdominal incision. A large, double, soft-rubber drainage-tube was introduced to the bottom of the cavity and the rest of the wound closed as is usual. The quantity of fluid escaping during the first few days was enormous, soaking the large thick dressings in a short time and requiring their frequent renewal.

The skin coming in contact with the moistened dressings became exceedingly red and excoriated, and it proved a difficult matter to protect it from the irritating action of the pancreatic fluid. After some trials I found that mutton tallow applied to the skin when still quite warm gave better protection than lard, vaselin and the rest of the softer ointments. One of the drainage-tubes was removed after five days; the second one was gradually shortened till at the end of the three weeks it was entirely removed. Six weeks after the last operation the fistulous tract had completely closed, and the boy was discharged. His health and nutrition had rapidly improved, and when discharged he appeared as well as ever.

The facts to which I wish to call your attention in this case are:

1. The typical history of the case, agreeing in all the important points with the classic symptoms of pancreatic cyst after injury, as described by Senn and others, with the exception that all the cases reported as far as I can learn were met with in adults, mine in a child.

2. The danger of exploratory puncture even with a small hypodermic needle—this is beautifully illustrated in the case presented, and though so careful a surgeon as Senn advises this little procedure in case of doubtful diagnosis, and strongly condemns it in case of hydatid, distension of the gall-bladder, etc., I am persuaded that in cyst of the pancreas, when of rapid development and where the cyst wall is normally thin and delicate, this little operation can not be too strongly condemned.

A few years ago so able and conservative a surgeon as Treves recommended the exploring needle in cases of doubt in appendicitis. My first case of appendicitis proved to me the absolute danger of such a method, and I have always regarded this procedure as by no means void of danger. From the experience I had in the above case of pancreatic cyst, I am more than ever convinced that the exploring needle and hypodermic syringe should be banished as a means of diagnosis in any obscure abdominal affection. The dangers are so overwhelmingly against their employment, as compared with the aid they may render, that exploratory puncture of the abdomen must henceforth be ignored.

200 S. Terrace Street.

PUBLIC BATHS along the Hudson and East River fronts of New York City have been opened for the summer, and on Rivington street a permanent public bath house, to be open the year round, and to cost $96,000, is in course of construction.

TREATMENT OF TUBERCULOSIS.*

A THERAPEUTIC MEASURE BASED ON PHYSIOLOGIC CONSIDERATION.

BY J. F. PEAVY, M.D.

ASHEVILLE, N. C.

Serum therapy, claiming the designation of physiologic medicine, has a very doubtful title to that distinction. The introduction into the circulation of toxins, themselves the production of morbid action, may, under some circumstances, counteract other toxins there. Under some conditions they may excite a cellular response resulting in the generation of protective substances by the cells. The use of these agents is perhaps legitimate and promises to become scientific, but it seems a questionable use of language to distinguish as physiologic methods which depend for their results on pathologic processes.

Oxidation is the ultimate measure of vital action as well as the ultimate source of vital force or resistance of the body as a whole and of its cellular elements. Oxidation furnishes the energy with which the organism does its work, cellular and somatic, developing the potential energy of the nutritive increment into vital action. Thus, nutrition and oxidation become the ultimate factors on which depends the generation of vital force. Under normal conditions the processes balance or complement each other. This correlation may be destroyed in various ways. Overfeeding and insufficient exercise tend to prevent oxidation from keeping pace with the nutritive increment and favor the development of suboxidation products in the system. Notably, rheumatic and gouty states are produced in this way. Various special defects of nutrition may interfere with the capacity of the tissues and fluids to appropriate oxygen. Living in a poor or vitiated atmosphere lowers the physiologic oxidations, because the oxidizing capacity of the air is low.

In whatever way it may come about, lowered or defective oxidation lowers the defensive capacity of the organism. It does this by lessening the cell vitality and resistance. Thus increased vulnerability, either general or local, may arise. Special vulnerability to particular infections may be favored by inherited predisposition. When the defensive capacity falls below the point of successful resistance, the germ profits by his opportunity to occupy for his species a new nook in the economy of nature. He is able to do this because the low cell vitality and the presence of suboxidation products make for him favorable culture conditions.

Oxygen is not only the excitor of nerve sensibility and muscular contraction, thus actively supporting life, but it is also the active agent in preparing for elimination the products of waste, serving as the scavenger of the system. On account of its pre-eminent physiologic importance, the conditions of its introduction and action in the human system demand consideration. In the first place, it is of prime importance that the nutritive increment be properly maintained, supplying the materials for this organic combustion. Lower nutrition and the oxygen increment is lessened as a simple physical adjustment and the vital dynamic output proportionately diminished.

Another condition on which depends the capacity of the fluids and tissues to appropriate oxygen is their alkaline or electropositive nature. Lessening this alkalinity lowers the capacity of the red blood-cells to take up oxygen in the lungs and distribute it to the tissues, the

*Read at the Meeting of the Alabama State Medical Association, Mobile, April 29, 1899.

capacity of the tissues to appropriate it in effecting their own metabolism and also the solvent power of the blood for the products of oxidation.

The capacity of the red blood-cells to convey oxygen to the tissues may be impaired by defects of nutrition. Nitrogen is a necessary constituent of hemoglobin. This element is full of capacity while possessing little positive property. It appears to alter its chemic attitude and relationships to adapt itself to the intramolecular changes which hemoglobin is constantly undergoing in the discharge of its functions. A due amount of nitrogen is necessary to make vigorous blood-cells. The essential constituent of hemoglobin, however, the fundamental properties of which constitute the basis of its function, is iron. This may be deficient in quality, constituting the condition known as anemia or chlorosis, with diminished capacity to supply oxygen to the tissues.

The state of the respired air affects the amount of oxygen which the blood is able to take up in the lungs. The principal factors, aside from the constitution of the air, which make up this condition are density, humidity and electric tension. These are the variable factors. Contamination by excess of carbon dioxid and other gases may, under certain circumstances, become a factor. Other things being equal, increase of density increases the amount of oxygen which the respired air is able to give to the blood by increasing the absolute amount of oxygen in given volumes of air. Under natural conditions, the greatest atmospheric density is found at the lowest levels and, other things being equal, the oxygen increment would be greatest at the lowest levels. Other factors, however, are not and can not be equal. At low levels, there is ordinarily high atmospheric humidity and low electric tension. Moisture in the air diffuses and destroys electric tensions. At low levels, even if the air is dry, the electric tension is much lower than in higher regions, especially among mountain-peaks. The projections of the earth's surface apear to act as points concentrating the earth's electricity, these charged points charging the air flowing over them. Whether or not this is the explanation of the presence of ozone in mountain air, it appears to be accepted as a fact that the ozone is present in greater abundance than in that of low levels and that the air has increased activity, notwithstanding the fact that the absolute amount of oxygen is less.

The essential fact in the ozonic conversion of oxygen is the dissociation of the atoms of O_2, the ordinary condition of oxygen; O_3, the ozone of the textbooks, is an unstable triatomic grouping which returns readily to the atomic, nascent condition under the influence of disturbing affinities. This accounts for its increased chemic activity as compared with ordinary oxygen. The dissociation of the atoms of O_2 means an appropriation of energy which is represented by the nascent, polarized condition of the parted atoms. This vibrant energy is either chemic or electric energy, as circumstances may determine, as two modes of force here become identic. In the presence of oxidizable material it expends itself in chemic action. If only oxygen bonds are present the atoms fall into the unstable triatomic grouping known as ozone.

Simple altitude without compensating conditions could be only a disadvantage to persons suffering from impaired lung function on account of the diminished atmospheric pressure and consequent rarefaction of the air. Where the function of a part of the lungs is impaired or lost from tubercular infiltration, there is a tendency to compensatory dilatation of the cells of the unaffected portions. Much diminished atmospheric pressure, either natural or produced by artificial contrivances, may carry this emphysema much beyond the point where any compensatory advantage accrues, increasing the embarrassment of respiration by interfering with the proper renewal of air in the lungs. Very high altitudes soon work the ruin of cases with hemorrhagic tendencies or weak hearts.

Moderate altitudes are, for the great majority of cases, most beneficial, and not then from diminished atmospheric pressure but from compensating conditions. These are diminished humidity, diminished miasmatic influences, diminished heat in summer season and increased electric tension in the air. This last condition pertains especially to the oxygen of the air.

Electric excitation antagonizes chemic union between atoms similarly excited, and favors it between atoms oppositely excited. Electric tension, as affecting oxygen, is defined as a condition of strained relations between the atoms of the oxygen molecule. It reaches its highest expression in a rupture of relations and the development of atomic oxygen. A partial loss of tension allows the unstable triatomic arrangement O_3. A further diffusion of tension allows the ordinary diatomic grouping.

This electric strain increases the chemic activity of oxygen by lessening the cohesion of its atoms, causing them to part company, the more readily to enter into new combinations under the influence of disturbing affinities. This, then, is the condition which more than compensates for diminished density in mountain air, unless, indeed, the elevation be so great as to radically disturb the mechanic conditions to which the circulation is adjusted. At moderate elevations, 3000 to 4000 feet, with ordinary exercise, the oxidations are carried on more perfectly than in the denser air of low levels. The tonic effect of mountain air consists chiefly in this increased chemic activity of the oxygen, stimulating nerve and cell, increasing metabolism, and hence, the nutritive demand; promoting appetite and digestion and ridding the system promptly of the products of waste.

The process of nutrition and oxidation being fundamentally related to the development of vital force, or resistance, a method of treatment designed to stimulate the one and promote the other can certainly lay claim to a physiologic aim. If it accomplish this result, augmenting cell resistance and reparative power, it must be admitted that it acts in line with physiologic forces.

The fundamental aim in the method set forth in this paper is to increase the physiologic oxidations, at the same time utilizing the tonic effect of static electricity, stimulating metabolism, increasing the demand and the capacity for increased nutritive increment, thus building up the resisting and defensive powers of the organism.

A proximate object of the treatment is to remove the products of waste, the sewage of the system. As is well known, in conditions of suboxidations the products, especially of nitrogenous waste through lack of solubility and difficulty for incomplete oxidation, tend to be precipitated and retained in the system, acting sometimes as irritants, always as disturbers of normal cell activity and resistance.

To remove or prevent the accumulation in the system of products of suboxidation due to impaired lung function, no measures could have a stronger rational indication than the use of oxygen itself under conditions which secure its rapid appropriation.

The static machine used is an eight-plate influence

machine fitted with a Wimshurst charger or exciter, to be used when necessary, as is sometimes the case in damp weather. The patient is placed on an insulated stool connected with the positive discharge rod of the machine. The negative terminal is formed by a spray electrode having some forty-five brass points mounted on a stand, but insulated from it by a hard rubber handle. This electrode is adjusted so that the cluster of points is about two inches from the patient's mouth and nose. When the machine is operated, a strong electric wind is generated by the discharge from the points. This electric wind is rich in ozone, as is quite apparent from its odor, and is also shown by chemic tests. The ozone is due to raising the electric tension of the oxygen to the point of dissociating the atoms of some of its molecules. In this way the oxygen, already electronegative, is rendered more intensely so and its activity thereby exalted. At the same time the patient, forming as he does, the positive electrode, is positively charged, thus exalting the affinity of his fluids and tissues for the electronegative oxygen. The patient is simply required to breathe and we have the conditions for rapid and effective oxidation. The frequency and duration of the inhalations are matters to be determined by the conditions present in individual instances. The quality of ozone developed by the process varies somewhat with atmospheric conditions. Fortunately, most ozone is developed in damp, murky weather, when it is most needed. In fine weather, it is easier to get up tension in the machine and possible to get a more violent disruptive discharge, but the ozoning action is less. There is more ozone normally present in the atmosphere in fine weather, but this means simply that, like any form of electric tension, the ozonic condition of oxygen is more persistent in fine weather.

What have we a right to expect from this treatment? Oxygen, as you know, is nature's great depurative agent both in nature at large and in the animal economy as well. Under the more active form in which it is furnished by this process, we certainly have the right to claim that it facilitates the removal of the products of waste, as well as the noxious materials resulting from impaired function and diseased processes in the lungs. Ozone destroys all known germs. The claim is not here set forth that it will penetrate deeply into the tubercular masses and destroy all the germs, but it is a fair claim that it will destroy exposed bacilli and do much by direct action to inhibit their development. It will do much to destroy devitalized masses, forestalling to a degree the development and absorption of toxins. It is, however, upon the property which this high tension oxygen has of stimulating metabolism, thus promoting nutrition and cellular vigor and resistance, that our highest hopes are based. The cells in this way are made more self-protective and the process is certainly more physiologic than any protection afforded by the introduction of toxins into the circulation.

No fact is better attested than that spontaneous recovery from phthisis sometimes takes place. This can only occur through the vital resistance of the organism itself, manifested either as a local cell resistance directly exerted on the invading microbes or as a capacity to generate antitoxins, neutralizing the toxic products of germ activity and inhibiting the development of the germs themselves. At any rate, the recovery is due to the reactive vigor of the cell, and this in turn is the product of nutrition and oxidation.

Attention to dietary is necessary to insure a due amount and proportion of the different elements necessary for the nutrition of the body. It is especially important that the diet should contain a sufficient amount of proteids. It is through the increased capacity to appropriate these tissue-builders that restoration of structure and function takes place. In conditions of suboxidation it is these azotized materials which cause the most mischief on account of imperfect assimilation and conversion, thus not only failing to support normal tissue change but poisoning the system by the generation of toxins. The increased oxidation secured by this method tends to clear the system of the toxic products of disturbed metabolism and promote the normal conversion of these active agents of tissue renewal.

The intention of this paper is to place the method on a rational basis and to develop, to some extent, its physiologic and physical implications. The author is quite willing to let the merits of the method be determined by practical results. Cases now under treatment will be reported in due course of time.

HUMAN FACE AND JAWS.*

AS A DANGER SIGNAL OF SYSTEMIC DEFECT OR DISORDER.

BY J. G. KIERNAN, M.D.
CHICAGO.

Man is a compound organism made up of many different organs, structures and systems which have their own life, albeit subordinate to the life of the organism as a whole. These structures, organs, etc., draw on a fixed supply of the nutriment and unless this nutriment be properly distributed through the system of checks summed up in the nervous system one organ or structure will receive more than its due proportion of nutriment. The balance kept up by the checks is distributed when the organism becomes nervously exhausted either from nerve-tire, from general disease, or from other cause. If this exhaustion occurs at certain periods, called the periods of stress, or of involution and evolution, certain structures on which is thrown such stress are peculiarly apt to be affected either in the direction of arrested development or of hypertrophy. Prominent among the structures which mark these periods are the jaws and teeth, considered together.

The period of the first dentition is one of these periods of stress during evolution, the period of the second dentition is another, and the appearance of the so-called wisdom-tooth marks a third, while the disappearance of the teeth from senility is the period of involution. These conditions of nerve strain may affect the organism of the individual so that not he but his descendants show the effects. To this result are often due the irregularities of the jaws and teeth resulting from the lack of balance of the proper distribution of nutriment. The defective palates are also an expression of this strain and not of conditions like mouth-breathing, due, like the defective palates, to hereditary defect evincing itself during the evolutionary periods of stress or at birth. These irregularities are danger-signals prophesying what may happen to the child of the nervously exhausted individual unless there be proper training at the periods of stress, training which will involve brain, nervous system, nutrition and excretion.

The degeneracy which results from nervous exhaustion is a prophecy of what may be rather than a destiny. As the dentist is among the earliest of the medical spe-

* Presented to the Section on Stomatology, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6-9, 1899.

cialists to whom application is made it comes within his power to outline a course of training and treatment which will prevent the child evincing irregularities from becoming a moral lunatic, an imbecile, a paranoiac, a sexual lunatic, or a victim of lesser forms of degeneracy. Here is a point at which the dentist is afforded an excellent opportunity to take part in the beneficent work of the prophylaxis of the medical profession, which has done so much for the race. The three dentitons, as they are called appropriately by Dr. Talbot, mark three periods of systemic evolution when it is possible to affect the mental and physical development favorably.

NERVOUS DISEASES.*

RELATIVE CURABILITY AND THERAPEUTIC INDICATIONS.

BY JOHN PUNTON, M.D.

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Nervousness has been universally designated as the American disease. European and American literature abounds with alleged facts to substantiate this claim. That nervous diseases prevail to an alarming extent in this country no one assumes to deny. Moreover, their protean forms and intractable character render at times both their diagnosis and prognosis exceedingly difficult and uncertain. In view of this it is fitting that we devote some attention to their relative curability as well as devise means and methods for their relief.

According to Dana[1], there are 176 diseases of the nervous system, and while the majority of these are comparatively rare and uncommon there are at least sixty that are very common and extremely important, and it is these more especially with which the general practitioner comes more or less in contact and should be thoroughly familiar.

Owing to the extreme complexity of the nervous apparatus and its consequently laborious study, its diseases taken as a whole present more difficult problems to the physician in the manner of diagnosis, prognosis and treatment than any other class of disease. Yet I contend that few physicians, comparatively speaking, are willing to pay the necessary price—which implies close confinement for years to its special study, including practical hospital training and experience—to master the essentials, knowledge and principles that underlie the diagnosis, prognosis and treatment of even the more common nervous diseases. On this fact largely hinges the stigma of their incurability, for the relative curability of any given nervous affection is ever based on the accuracy of its early diagnosis.

In this connection it is unfortunate that even up to the present time no accurate scientific classification of diseases of the nervous system can be offered the physician to aid him in solving a doubtful diagnosis. The reason for this is obvious, but the day is rapidly approaching when all diseases of the nervous system will be recognized as due to some change of structure involving its function, and its true pathologic character strictly defined. Until this is accomplished, however, we are compelled to acknowledge our weakness by the use of terms which, if not strictly correct, have at least the redeeming feature of being practical.

By universal consent nervous diseases are roughly divided into two great classes, organic and functional, the former including all lesions visible to the naked eye or by means of the microscope, and the latter those in which so far the lesion has not been discovered, but their effects consist in an impairment of nerve action.

In the first class the nerve elements are not as a rule primarily affected, but are so secondarily, in which event the morbid process commences outside them. In the second class this rule is completely reversed, the nerve elements being primarily affected. Moreover, as many diseases are found to affect more than one portion of the nervous apparatus, a convenient classification recognizes their special seat. According to this view, we may have diseases affecting the brain, the spinal cord or the peripheral nerves. The differential diagnosis of each, however, depends entirely on the physician's knowledge of the structure and function of the parts involved.

When we come to carefully analyze the lesions which form the basis of nervous affections we find they are not specifically numerous, and often while being essentially the same in character in different situations, they present an entirely new clinical syndrome, varying with their seat, so that a knowledge of their special effects on one part is not the equivalent of another. This accounts for a wide range of clinical phenomena which again increases the difficulties to be encountered in their diagnosis. Generally considered, the chief lesions affecting the nervous apparatus can be arranged under six groups: 1, vascular; 2, inflammatory; 3, degenerative; 4, toxic states; 5, congenital malformations, and 6, functional or unclassified lesions. The first include such conditions as anemia, hyperemia, hemorrhage, thrombosis, embolism, atheroma, aneurysms, etc.; the second all forms of meningitis, myelitis and neuritis; the third, locomotor ataxia, lateral sclerosis, progressive muscular atrophy, bulbar or nuclear palsies, infantile and other palsies, Friederich's disease, muscular dystrophies, growths and tumors; the fourth, syphilis, alcoholism, lithemia, morphinism, mercurial and all other toxic states; fifth, hydrocephalus, microcephalus, spina bifida, kyphosis, scoliosis, rickets, idiocy, etc.; sixth, neuralgias, hysteria, migraine, epilepsy, neurasthenia, catalepsy, paralysis agitans, chorea, tics, tetanus, exophthalmic goiter, occupation neurosis, etc.

The general effects of the lesions producing these pathologic states, as before remarked, present a wide and varied range of symptomatology which conforms to their special seat. When they are studied in relation to their effects on the brain, spinal cord, and peripheral nerves, the chief diseases they are responsible for in these situations are the following:

1. *Brain Diseases.*—In early life the chief nervous diseases affecting the brain are the various forms of meningitis—viz., pachymeningitis and leptomeningitis, tuberculosis and epidemic or spotted fever—and epilepsy. Meningitis and epilepsy, however, may and do occur at all ages. Next in frequency perhaps are the various forms of infantile and other palsies, viz., monoplegia, hemiplegia and paralysis of the cranial nerves. In adult life cerebral hemorrhage, thrombosis, embolism, softening and syphilis are perhaps the chief diseases, while in addition we may have cerebral abscess, tumors and the various cranial nerve palsies.

2. *Spinal Cord.*—When we consider diseases of the cord, we find the lesions producing them are even more limited than those of the brain, and are indeed comparatively few in number. While undoubtedly the great majority of its diseases are in a measure due to both quantitative and qualitative changes in the constituents of the blood, yet the vascular lesions are so uncertain in the

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[1] Text-book on Nervous Diseases.

production of symptoms that such conditions as congestion and anemia or even hemorrhage of the cord are not easy to demonstrate. New growths, and tumors of the cord, are also on the whole extremely rare, so that the most common and consequently the more important diseases of the spinal cord are those due to inflammatory and degenerative lesions. The diseases which they produce, while presenting a wide range of variability, consist chiefly of the different forms of meningitis and myelitis together with their secondary effects resulting in the various kinds of sclerosis and atrophy. We must also remember that the cord is not only liable to suffer from lesions affecting the nerve elements primarily, but it also suffers in consequence of disease outside them, by compression, which may be due to new growths, tumors, inflammatory products, or even hemorrhage. This often results in determining degenerative and sclerotic changes giving rise to their equivalent diseases.

3. *Peripheral Nerve Diseases.*—Clinical observation and experience also teaches us that the diseases of the peripheral nerves consist chiefly of the various forms of neuralgia, neuritis, tics, spasms and paralysis of individual or groups of nerves, together with the accompanying changes common to each. Time forbids further enlargement on these; suffice it to say their unilateral character suggests their source of origin.

4. *Functional or Unclassified Diseases.*—Besides the diseases known to be due to definite lesions of the brain, spinal cord, and peripheral nerves, there are a number already referred to, which affect more or less all parts of the nervous apparatus, but so far their pathologic character has not been strictly defined. These constitute the so-called functional nervous affections such as hysteria, chorea, neurasthenia, paralysis agitans, catalepsy, epilepsy, etc., and these are by far the more prevalent and common and relatively of greater importance than the rest. By virtue of the purely subjective character of their clinical phenomena, their diagnosis is often very obscure and misleading, consequently many a curable case becomes incurable either through sheer ignorance of their nature and character, or lack of enforcing appropriate methods of treatment.

Practical knowledge and experience prove conclusively that when the two great classes of nervous diseases are duly compared irrespective of their seat, the organic are well-nigh incurable, while the so-called functional affections, are, if recognized early, for the most part curable. While there are notable exceptions to this rule, more especially when the diagnosis is made early and appropriate methods of treatment duly enforced, yet its validity cannot successfully be disputed. The time has arrived, however, when a uniform consensus of opinion is highly desirable by those most competent to judge of the relative curability of nervous diseases, on account of their great importance as well as the wide divergence of text-book opinion as to their prognosis. Take for example epilepsy. As it now stands every writer is authority unto himself, and wields his own statistics to suit his own ends. As a result scarcely any two authors agree, and the profession at large are grievously misinformed. If for instance we refer to Ranney, we are led to believe that by the relief of eye strain a large percentage of recoveries from epilepsy can confidently be looked for.

Dana states "that 5 to 10 per cent. get well." Sachs says, "I have seen but very few cases of absolute cure of genuine epilepsy." In a late paper read in my hearing, by Dr. Wharton Sinkler, on this subject, he summed up as follows: "After consideration of the cases above referred to, in which after prolonged intervals, even as long as twenty-nine years, there has been a recurrence of the disease, we are forced to the conclusion that it is not justifiable to consider any case of epilepsy cured, no matter how great has been the interval of freedom from attacks and appearance of normal health." The discussion which followed the reading of this paper was taken part in by the leading neurologists of this country, and all concurred in the opinion that idiopathic epilepsy, if not entirely incurable, was nearly so. In spite of this, in every community we find persons claiming that they possess a remedy which is a "sure cure for fits," and yet we as a profession, while looking on with disgust, fail to put forth any special effort to prevent such fraud and deception.

Now, what has already been said of epilepsy is largely true of other diseases, such as locomotor ataxia, lateral sclerosis, paralysis agitans, and many other diseases which, after reaching a certain stage, are regarded by the best authorities as incurable. In spite of this there are men, both in and outside of our profession, who claim to possess the power to "cure these incurables," and send us reprints urging us to send our incurable cases to them. I have seen many a poor incurable nervous invalid swindled of his last dollar by such men on the promise of a cure, when all the reliable evidence is against such a prognosis. There never was a time in the history of medicine when so much fraud and deception was practiced on the helpless neurotic incurable as the present.

In view of this, and the prevailing diversity of text-book opinion in regard to the prognosis of nervous diseases, it is highly desirable, indeed an actual necessity, that a text-book authorized by this or some such competent association, be furnished the medical profession, in which is set forth reliable data based on actual facts as demonstrated by practical clinical observation and experience by those most competent to judge of the reliable curability of nervous diseases. On account of their universal prevalence and dependence on disturbances of the functions of the nervous system, which by the way dominate all parts of the human organism, nervous diseases naturally come under the observation of the family physician more frequently in their incipient and curable stage than to any other class of physicians. It is to the general practitioner, therefore, that we must of necessity look for our greatest advance in their curability, and this can only be done by their early recognition and the enforcement of appropriate methods of treatment. Failure in these essentials is largely responsible for the reproach now cast on our professional ability to successfully cope with even the more common nervous diseases.

It is not until the incipient or curable stage is passed that as a rule the nervous invalid appeals to, or is referred for aid to the neurologist, and then it is usually too late to conscientiously offer the patient more than temporary relief. Hence the common slur so often flung at the neurologist as a reward for his services, viz., "About all you can do is to make a diagnosis and offer a bad prognosis," is wholly undeserved and at best reflects the gross ignorance and lack of dignified courtesy of its author.

All authority recognizes the vast dependence of the vital organs on the normal integrity of the nervous functions, and when this neurotic influence, either through sheer ignorance or indifference, is wholly divorced from the clinical study of general disease, failure to cure often of necessity follows. Too often the nervous system is erroneously regarded as an independent organ or as an appendage to the rest of the body, when in fact it is an integral portion of every part of it, not only having spe-

cial organs of its own but also entering deeply into the formation of every bodily organ, and the manifestation of their functional activity is due almost entirely to their special nervous innervation. As the physiologic integrity of the nervous system depends entirely on its normal blood-supply, anything which tends to interfere with this, or change its relative constituents, at once impairs its specific energies. This result is either a local or constitutional lesion which, according to its nature and character, as well as seat, gives rise to clinical phenomena which indicate its pathologic characteristics. Scientific observation and experience also warrant the assertion that in their pathogenesis, functional nervous disorders owe their origin to and largely depend on qualitative and quantitative changes in the constituents of the blood, due to various causes. This results in defective innervation of the body organs, inducing malnutrition and consequent disease. As the general body organism suffers primarily, the actual neurotic basis of the malady is often obscure or held in abeyance, and this leads to mistakes in diagnosis. Consequently too often the effects are treated, rather than an effort made to remove the cause. Subsequently the real nervous affection matures, making itself manifest by actual nervous phenomena, but instead of a functional neurosis, we now have a true organic affection to deal with, which renders the case well-nigh incurable.

The transition from the curable to the incurable is often so insiduous and apparently innocent in its effects on the general organism that the patient is given the benefit of the doubt by his family physician, and procrastination becomes the rule until it actually signs the death-certificate.

If it be true that functional nervous disorders in their pathogenesis are largely due to lesions of malnutrition then the therapeutic indications for their curability is self-evident. Anything that has a tendency to re-establish and maintain the normal correlation that should exist between the blood-supply on the one hand and the nervous innervation of the various bodily organs on the other becomes both a prophylactic and therapeutic agent in the prevention and cure of nervous diseases. As the means to attain this end are already well known to you, their special consideration at this time would carry us far beyond the scope of this paper; suffice it to say that too often the important rôle played in their production by hereditary influences, environment, and education are too often overlooked, and their true significance greatly misunderstood. If I have succeeded in calling attention to a subject which deserves more than a passing notice the object of this paper will have been fully met.

MALIGNANT DISEASE OF NOSE AND THROAT*

BY JONATHAN WRIGHT, M.D.

BROOKLYN, N. Y.

It is well known to all of us that statistics, those figures which *do* occasionally lie, have shown that malignant disease is apparently increasing among mankind. I have seen no statistics to prove whether this is altogether an absolute increase or whether it is to some extent a relative one. It must be remembered that the average duration of life has been prolonged into that period which is most liable to malignant disease. Emphasis has of late been given to the old observation that cancer is the disease of the rich and luxurious, of the beef eater, of the high liver and the slothful. There has been considerable evidence advanced to show that some forms of malignant diseases are due to the presence of a micro-organism coming in contact with the soil made suitable for its growth by the general predisposing cause of age, or by coming in contact with a local benign growth adds a malignancy to cell proliferation which we recognize in the terms carcinoma and epithelioma. It is by the light which exceptional cases throw on the questions of etiology, of differential diagnosis, and of treatment, that we may hope to advance our knowledge of this desperate and mysterious affliction of mankind. Numerous and perfectly reliable reports are appearing from time to time, which remind us that cancer, and especially sarcoma, although as a rule fatal diseases, are occasionally self-limited. The tumors which vanish of themselves in the course of time have been proved, so far as clinic and microscopic history can do it, to be occasionally true sarcoma or carcinoma. While this at times may throw a shade of doubt on the actual efficiency of the same operations it at the same time teaches us that an epithelioma or a sarcoma is not necessarily an inexorable summons of the grim avenger. Such exceptional instances are occasionally observed in the nose and throat. It may be conjectured that this is the true explanation of some of those cases in which malignant growths have failed to recur after internal operations of the pharynx and larynx. While it is within the range of possibilities that such an operation may be so complete or the disease may be so localized that every island of vicious epithelium or every nodule of perverted connective tissue is separated from its healthy environment, it is difficult for the experienced histologist to conceive that this is the usual result. The unusual course of malignant tumors ending in recovery without operation suggests that in some cases the microscope may not be so much at fault as our conception of certain forms of cell growth in the tissues. The importance of this part of the subject lies in the vista which it suggests. If there are certain influences in the animal system which under certain conditions are able to destroy the continued potentiality of malignant cell proliferation, it is not unreasonable to hope that these influences and these conditions may be revealed by the persistent endeavors of future generations of patient and honest biological workers.

I have been requested to present for your consideration that aspect which malignant disease assumes when it has its seat in the upper air-passages. In the time allotted to me it is not possible to elaborate in detail and it would not be profitable or interesting for you to hear a complete exposé of even this limited part of the general discussion. It would be superfluous to present to you the typical pictures made by a sort of composite photograph of the various cases personally observed or to be found reported in current medical literature, of epithelioma or sarcoma respectively of the nose, of the pharynx, and of the larynx. Neither would it be conformable to the plan of this discussion, as I understand it, to limit myself to the consideration of any one subdivision of the subject, and yet any complete and satisfactory study of the subject must be made by dividing and subdividing it. Malignant disease of the nose presents a clinical picture entirely different from that of the larynx. A sarcoma of the nasal septum presents problems of pathology, differential diagnosis, and treatment entirely separate from those of an epithelioma of the fauces. It seems best, therefore, that I should touch upon certain points which have interested me in connection with the subject in the hope that they will also interest you, rather than to attempt to superficially cover the whole field.

* Read at the Fifteenth Annual Meeting of the Fifth District Branch of the New York State Medical Association, held in Brooklyn, May 23, 1899.

A very few cases of pure adenoma have been reported as occurring in the nose, but a larger number have been observed in which the adenomatous elements were combined with sarcomatous or epitheliomatous characteristics. During the last three or four years I have from time to time examined adenomatous tissue removed from the nasal fossa of a case under the care of Dr. Hinkel of Buffalo. Although it repeatedly recurs in an enfeebled woman, in the upper regions of the nose, it has not as yet shown evidences of malignancy either clinically or microscopically. As this case has been reported elsewhere I take this occasion to say that it still presents every appearance of a papillary adenoma, a form of growth which was described many years ago by Billroth as "Zottenkrebs." I have also had occasion to microscopically examine four or five specimens of adenosarcoma and adenocarcinoma of the nose, and incidentally I have become acquainted with the clinical histories of these cases. One or two such I have had the opportunity of observing clinically, although in the practice of others. I have also read with care the very few reports of such cases to be found in literature. From this somewhat extended study of what is usually regarded as a very rare nasal affection it seems to me evident that while adenoma of the nose is exceedingly rare, and while, even when found to exist without evidence of malignant degeneration, it is exceedingly liable to take on later malignant characteristics. Adenocarcinoma and adenosarcoma are to be ranked among those forms of malignant disease of the nose which run a comparatively slow course, the patient frequently living many years after its inception. They would therefore often be exceedingly favorable cases for operation, but for the fact that they usually occur in very old or very much enfeebled individuals, while the operation in itself is one usually attended with much danger in that class of patients. As to the diagnosis between adenoma and adenosarcoma or carcinoma it must be remembered here as elsewhere that in the presence of clinical evidences of malignancy the value of a negative microscopic diagnosis is of small value. This is not due here, however, so much as elsewhere in the nose and throat to the fact that it is difficult or impossible to obtain a proper piece for examination, but because it is often impossible for the microscopist to give a reliable opinion as to the significance of many of the areas of round-celled infiltration in these growths, which may be either inflammatory or sarcomatous, or of those irregular areas of epithelium, which may be either simple exaggeration of the glandular epithelium or the manifestations of the suspected epitheliomatous involvement.

Besides adenosarcoma of the nose there are other forms of sarcoma when they occur on the cartilaginous nasal septum, which not only run a comparatively benign course but frequently fail to recur after extirpation, and therefore present a very favorable prognosis when seen early.

Two Italian observers[1], independently of one another, have lately recorded observations which I have not hitherto seen in print, in regard to the spindle-celled, the endothelial and the angiosarcomata of the nasal septum. They assert that these forms of sarcoma in this situation in many instances present a benignity of clinical history and a failure to recur after incomplete removal, which are in striking contrast to some of the other forms of nasal sarcoma, and of the same form situated elsewhere. From my own experience with seven or eight cases of sarcoma of the nasal septum, examined microscopically, I am inclined to corroborate these statements, but I confess I have been rather inclined to impugn my own powers of microscopic analysis rather than to suppose that any marked exception to the usual history of sarcomatous growths should be found to occur in the neoplasms of the nasal septum. As a matter of fact, however, sarcomata in other situations present many such exceptions to their usual malignity; and this is true only to a less extent of carcinoma. Nearly every one of wide experience has seen a prognosis founded on microscopic findings, and even with corroborating clinical history, refuted by the subsequent result. A large number of such instances have recently been reported from the personal experience of the observers. I refer to the papers by William Bennett[2] and D'Arcy Power[3]. So far as I know there is nothing but experience and an otherwise unsupported theory which teaches that such and such form of cellular growth is fatal in its course. Hitherto, when in any case the results have not been conformable to this experience, we have supposed that the diagnosis and not the theory has been incorrect. Too many such instances are now being constantly reported to allow us to rest easy under this assumption. If the parasitic nature of cancer is established, as the investigations of Russel, Sansfelice and Roncali foreshadow, we can have reason to suppose that an individual may not only be immune to cancer infection, but if infected, develop enough vital resistance to the germ to overcome the potentiality which it has given cell growth.

The differential diagnosis of malignant disease of the nose presents certain features which the locality brings into prominence. So far as the nasal chambers are concerned the adenomatous growths are the only ones which present much difficulty in the diagnosis between sarcoma and carcinoma. The microscope quickly decides between a small round-celled or a fibrous growth and epithelioma. So far as the clinical history, the prognosis and the treatment are concerned, it is of little consequence whether a malignant growth of the nose is an adenosarcoma or an adenocarcinoma. Epithelioma of the nasal chambers is an exceedingly rare occurrence. While it is occasionally necessary to consider the differential diagnosis between tuberculosis and syphilis of the nose, it is certainly very rare and as a matter of fact I have never heard of any case presenting any difficulties in the differential diagnosis between tubercular and malignant disease of the nose. But the cases which give rise to the most serious problems of differential diagnosis are the granulomata of syphilis and small round-celled sarcoma. In the one case we are enabled by simple modification to cause the disappearance of a vicious and alarming infiltration of important structures in a manner which is an almost unique vindication of drug therapy. In the other case we are in the presence of a rapidly growing disease which adds to the usual horrors of a malignant tumor, that of causing not only great suffering but that of mutilation and distortion of the human countenance; for in contradistinction to the benign forms of sarcoma of the nose which I have just mentioned, the small round-celled variety in this situation is the most malignant of tumors. It is therefore easily appreciated how vital is the importance of a prompt and accurate diagnosis. Of course there are a number of cases in which from the presence of various signs, it is easy to arrive at a reliable opinion. With these cases we are not at present concerned. The patient I have in mind presents himself with this history. He has suffered for several months with unilateral nasal ob-

[1] Martuscelli: Archivo italiano di Otolgia, 4, 1898; Strazza: ibid, 2, 1899.

[2] Lancet, Jan. 7, 1899.

[3] Ibid, March 4, 1899.

struction and has had occasional attacks of epistaxis. He usually at first complains of no pain. The nasal region on one side is distended and swollen and the nasofacial furrow is obliterated, the lower eyelid may be edematous and there may be lachrymation. There is a saniopurulent discharge from the nostril. On intranasal examination a vascular tumor, with a granular surface, covered with mucus presents itself in the anterior nares, usually so far anteriorly as to be seen without the use of a speculum. It bleeds easily when touched with a probe. It is a difficult matter to make out its base of attachment. It may extend so far back as to be seen with the postnasal mirror. No odor of dead bone can be distinguished, as this in itself is usually enough to make the diagnosis of syphilis. The submental glands may be moderately enlarged.

It not infrequently happens that this is approximately the picture of these doubtful cases. Thus far it is not incompatible with the diagnosis either of syphilis or of sarcoma. Yet as has been said, it is absolutely imperative that the diagnosis should be promptly made. We remove as much of the exuberant mass as we can with the snare. If the mass is large, a hot snare may be used without danger of so charring the tissues as to spoil the piece removed for microscopic examination. Very copious and sometimes exhausting hemorrhage may follow the use of the cold snare, and when this occurs, the incident points to sarcoma, but not conclusively. The piece is given to the microscopist for examination. If he freezes the specimen for cutting sections and it is a round-celled growth, the microscopic image is blurred and indistinct, so that absolutely no opinion can be formed as to whether it is a simple inflammatory or sarcomatous granuloma. A properly hardened specimen may prevent a more definite idea of the nature of the growth, but only too frequently, and even then, differential diagnosis is still impossible. How unreliable an opinion expressed as to the nature of such structure is, I am sure many of you have had an opportunity of judging. A case has lately been reported in one of the French laryngological journals in which a hard chancre of the anterior region of the nasal fossa was mistaken for a sarcoma by a competent microscopist and a distingushed laryngologist who himself reports the case. A day was set for removing the upper jaw. There was some delay, and a roseola and other manifestations of syphilis supervening, the patient's jaw and possibly his life was saved. An exactly similar incident has once entered into my own experience with tertiary syphlitic disease. The frequency with which this sort of an incident repeats itself in an extended clinical experience, in every line of surgical practice, but especially in the observation of diseases of the nose and throat, is well known, if the error is not always frankly admitted. Here and there in medical literature will frequently be found reports of cases of mistaken diagnosis in which the mistake was discovered in time. I hope that it will not be thought too cynical to remark that in all likelihood quite as many mistakes are unrecorded because they were discovered too late. How many are never discovered we have no way of knowing, though you will remember that one distinguished confrére estimated that his would fill a graveyard. However this may be in cases of the kind I have just outlined, I am sure we are all of us ready to join with the distinguished French syphilographer in his admonition: "Dans les cas difficiles, penez toujours à la syphilis, et pensez y encore."

We have seen that in these cases the microscope has failed to differentiate them and that brings us to the consideration of that other sheet anchor of differential diagnosis—the results obtained from the use of the iodid of potash.

I need not refer to the tendency of all new growths, whether malignant or not, if of recent origin, to recede to a certain extent under the use of the iodid of potash, except to draw attention to the liability of the observer of intranasal disease to be unduly impressed by this phenomenon in favor of a diagnosis of syphilis; because the recession of the growth within the narrow confines of the nasal chambers appears more marked than it does on the surface where there has been no definite and limited space to be modified by the increase or decrease of the growth. Time will soon rectify this difficulty, but two weeks is usually the shortest period of time in which under the use of the iodid of potash the diagnosis of malignant disease will become manifest.

Before we leave this subject of differential diagnosis of malignant nasal disease, one word in regard to the "clinical sense," so much relied on by many and frequently so valuable a mental possession. It is a faculty which is the inarticulate result of previous experience, but there is probably no faculty of the mind of the clinical observer over which it is necessary for him to keep such a close watch if he desires to escape falling into errors sometimes fatal to his patients. It is a brilliant mental equipment for the classroom, but for the difficult cases which we have been considering and which we may subsequently have the opportunity of following to the autopsy table, it is a mental equipment which should only be relied on in the absence of more demonstrable aids to diagnosis or as confirmatory of them. Malignant disease of the fauces, earlier giving rise to subjective symptoms and being more accessible to thorough examination than that of the nose, presents as a rule fewer cases in which the diagnosis for any length of time is a matter of doubt. Epithelioma, infiltrating the tissues more deeply and extending more quickly to ulceration than sarcoma, produces, more regularly than sarcoma, the lancinating pains which attend ulcerative affections of the fauces. From such a neoplasm a piece removed for microscopic diagnosis usually establishes the nature of the growth. It occasionally happens, however, that neither is the clinical picture conclusive nor is it possible to obtain a fragment for microscopic examination. I have had the opportunity of seeing many cases of malignant disease of the fauces, but the one which is most indelibly impressed on my memory was that in which the growth involved the root of the tongue without ulceration, on each side of the median line symmetrically, and also involving the hyoid bone. Although I had this case under observation in private practice for more than three months, I was unable in that time to make a diagnosis. The case is reported *in extenso* elsewhere.[5]

Sarcoma of the tonsil, while not a very common disease, is by no means a very rare one. The tonsillar tissue being a lymphoid structure and made up chiefly of small round cells, we should naturally expect the form of sarcoma to conform to that of the normal tissue. As a matter of fact that is what we observe. I have lately had occasion to study the literature of the subject and I have been able to collect the reports of thirty-two cases of sarcoma of the tonsil in which a satisfactory microscopic diagnosis was made as to the variety of sarcoma. To this number I may add one which has lately come under my own observation and another which I have examined microscopically for Dr. Hopkins of Springfield, a report of which has not yet appeared. Of these thirty-four cases all were small round-celled sarcomata excepting

[5] N. Y. Medical Journal, Nov. 12, 1892.

five. Perhaps a further analysis of these statistics may not be uninteresting in connection with this subject. In twenty-one out of the thirty-one cases in which the age was given the patients were past 50 years of age, i. e., in over two-thirds of the cases. Dr. Bryant has reported a case of carcinoma of the tonsil occurring in a patient 17 years old, which is the youngest of which I have found a record. In my table of sarcoma cases I find five occcurring between 10 and 20 years of age. The difficulty and importance of differential diagnosis in these cases lies not so much between sarcoma and carcinoma—the microscope if not the clinical aspect of the case easily settles that—but between sarcoma and simple hypertrophy or syphilitic disease. Syphilitic hypertrophy of the tonsil is very rare. I have had opportunity to see a case several times this winter through the kindness of Dr. H. M. Smith, in which the patient is at death's door, and in spite of the continued use of the iodid of potash and microscopic examinations the diagnosis is still a matter of grave doubt in my mind, as between syphilis and sarcoma.

Occasionally the history is one of simple hypertrophy. The growth is removed by tonsillotomy and the specimen is thrown away. Within a few months the growth recurs. This is a rare event for simple hypertrophy, but in a young person not so rare an event as the occurrence of sarcoma of the tonsil. In the case I examined for Dr. Hopkins, the recurrent growth did not differ sufficiently from simple hypertrophy, in microscopic appearance, to lead us to suppose that it was anything else, although subsequent recurrences revealed the undoubted nature of the growth. It may be a matter of interest for me to venture to give so much of Dr. Hopkins' forthcoming report as to say that his case has presented the most gratifying results from the use of Dr. Coley's toxins. In a recent case of my own, however, the course of the disease was in no way arrested by the toxins and he died in four months from the beginning of the history of the growth. These small round-celled sarcomata of the fauces, owing to the rapidity of their growth and their rapid infiltration of the tissues when they once spread from the tonsil, and owing to the important structures which surround them, are usually inoperable.

The larynx, which is frequently described as a cartilaginous box whose walls are said not to be traversed by lymphatics, is theoretically the site from which a cancer might be thought to be removed with the least danger of local and systemic recurrence. Owing to the obtrusive function of the larynx, a change in the voice forcing itself on the attention of both the patient and his entourage, it should be possible to detect in its earliest stages even the most insidiously growing tumor. As on this early recognition depends a cancer patient's chance for life, we see in this early impairment of function another reason why the statistics of laryngeal cancer should be of the best; but as a drawback to these obvious advantages there are other respects in which we soon recognize, after a study of the question, influences which modify our favorable assumptions.

In the first place a large proportion of laryngeal neoplasms extend so far upward as to infect the lymphatics entering over the upper border of the thyroid cartilage. In the second place, while malignant disease at a very early stage causes a notable change in function, it may be easily mistaken for conditions which are trivial and which give rise to no pressing indications for interference; or even if the case is regarded with suspicion, the difficulties in differential diagnosis are so considerable and the gravity of operative procedures are so great that valuable time is frequently lost in arriving at a proper judgment as to treatment. In the third place the patient naturally hesitates to submit on account of what at the time appears a trifling annoyance, to the mutilation if not the annihilation of the larynx, and to the not inconsiderable danger to life itself. Even simple thyrotomy is not an operation so devoid of danger as amputation of the breast. The removal of the lining of the thyroid cartilage adds very materially to the liability of a fatal result, while laryngectomy, either unilateral or total, is one of the gravest of surgical operations and one only likely to be decided on in the face of the absolute certainty of a miserable and lingering death without such treatment. It is seen, therefore, that epithelioma of the larynx presents various special aspects of its own.

A discussion of these points as they have been alluded to may be as good a plan as any to bring the subject under your consideration. Notwithstanding the fact that anatomists have not traced lymph-channels through the cartilage, thus forming a direct channel of infection to the deep ganglia of the neck, there is a moderately thick network of lymphatics in the intralaryngeal mucosa, which communicates with the chain of cervical glands through the thyrohyoid and cricothyroid spaces. While therefore, a growth of the true cords may exist for many months without external metastasis, exemplified clinically by the late appearance of enlarged cervical lymph-nodules, we should not expect this to be the case in malignant disease of the epiglottis or of the false cords, or even of the laryngeal ventricles. Practically we find that the facts are fairly in accord with this anatomic theory, and every competent clinical observer recognizes the importance of taking into consideration the original site of the growth and the extent to which it has invaded the surrounding tissues, the latter being an exceedingly difficult, in many cases an impossible, thing to do by laryngoscopy. As to these points it may be well to quote the experience of others.

Jursz' cases are as follows: Out of 15 cases the growth involved the whole larynx in 1, right side in 2, epiglottis in 3, true cords in 4, false cords in 3, aryteno and interarytenoid space in 2.

Of Morrell McKenzie's 53 cases, 28 sprang from the ventricular bands.

Chiari[6] has recently given the results of his experience with laryngeal cancer. The disease began as follows: On the left vocal cord in 16 instances, on the right in 11, epiglottis in 6, arytenoid cartilage, arvepiglottic folds in 13, and was undetermined in 21. It will be seen, therefore, notwithstanding the discrepancies of varying experience, that a very large proportion of these malignant growths begin on the vocal cords. It is well to remember that these cases are not only the ones which earliest give subjective symptoms which should bring them under the notice of the laryngologist, but they are the ones also which, as far as I am able to judge from my own experience and from that recorded by others, present the best prognosis when promptly operated on. On the early recognition of laryngeal cancer depends, as has been said, the patient's chance of life. We cannot here enter on a full consideration of the signs which led to such a diagnosis, but there are certain statements which will bear reiteration whenever this subject is mentioned. In a man past 30, who has never before had any nose or throat symptoms, the gradual supervention of hoarseness lasting for more than a few weeks should always lead to a laryngoscopic examination. Any growth in the larynx of such a case should be regarded

[6] Annales de mal de l'Oreille, March, 1899.

by the laryngoscopist with suspicion. As large a piece as possible should be removed for microscopic examination, and in case the microscopic diagnosis is one of malignancy no time should be lost in proceeding to a radical extirpation, if the case is an operable one, because the mechanical injury made by the forceps in a hitherto quiescent malignant tumor of the larynx is extremely apt to stimulate it into rapid growth and infiltration of the surrounding tissues. It probably is this fact which led to the former supposition, so completely exploded by Semon's statistics, that a benign growth might be changed into a malignant one by meddlesome intralaryngeal surgery. The question as to how far a cancer of the larynx may have invaded the tissues, except where the disease is seen on the vocal cords in its earliest stages in one of difficulty. It is the rule rather than the exception that a thyrotomy, affording a direct view of the disease, will reveal an extent of involvement of the soft parts not seen in the laryngoscopic mirror. Were it not for this fact there are doubtless some cases of epithelioma in which endolaryngeal operations by skillful hands might suffice as a radical means of extirpation. Indeed, the remarkable statistics of B. Fraenkel[7] amply prove this but they also prove rather that he is the possessor of a diagnostic acumen and a manual dexterity to which many of us can lay no claim. As has been forcibly said, so far as endolaryngeal operation is concerned, the laryngologist should see *nolli me tangere* written boldly on a case of laryngeal cancer. A cancer of the laryngeal ventricles may have infiltrated and destroyed the underlying cartilage and be directly continuous with the perilaryngeal tissues without presenting a picture in the laryngeal mirror, or evidence to external palpation, which reveals the extent of the disease. It is not so difficult to ascertain whether a growth is high enough to have passed over the upper border of the thyroid cartilage and infiltrated the extralaryngeal tissues at that point. An enlarged cervical gland, pain, palpation will frequently reveal the condition and thus render the prognosis exceedingly grave. While any disease of the larynx quickly gives rise to subjective symptoms, and while the microscope and the iodid of potash are the sheet-anchors of differential diagnosis, it is sometimes impossible in the first instance and unwise in the latter to make use of them. Certain flat ulcerations or smooth round tumors offer no opportunity for the removal of tissue by forceps, for microscopic examination. On the other hand, in certain cases there may be so much inflammatory infiltration of the mucous membrane, and thereby so much narrowing of the laryngeal lumen, that potassium iodid can only be safely administered while the patient is in bed and under the careful supervision of a surgeon ready to do a tracheotomy at a moment's notice for the relief of a stenosis resulting from a comparatively slight increase of congestion, following the administration of the iodid of potash. While the graver forms of laryngeal edema from the use of this drug are sufficiently rare, an amount of laryngeal congestion, which under ordinary conditions would be insignificant is not infrequently sufficient to cause dangerous dyspnea in a larynx or trachea already narrowed to the danger point.

Occasionally carcinoma of the larynx will begin in such a way as to simulate localized or even non-specific diffused inflammation, and the difficulties in differential diagnosis are considerable. One or two such instances I have seen, and it may not be unprofitable to discuss this form of incipient laryngeal cancer. While a man in middle life, who has previously had no nasal pharyngeal or laryngeal lesion, is extremely unlikely to have a simple chronic inflammatory lesion begin in the larynx without marked exciting cause for it, such as unusual voice strain, exposure, or the inordinate use of alcohol, this is not the case with those patients in whom these conditions obtain or who are exposed to the causes mentioned. Therefore, in this type of the disease the habits and the occupation and the condition of the nose and pharynx are of very great importance in arriving at a proper understanding of the case. As to chronic alcoholism, it must be remembered that individuals suffering from it are quite as frequently habitues of the club as of the saloon. A man does not by any means need to be a common drunkard to suffer from chronic alcoholism of the upper air-passages. The nose and the pharynx must always be carefully inspected in searching for the cause of laryngeal conditions which may be simply inflammatory or may be malignant. The thickening of the posterior laryngeal wall and of the interarytenoid space may mean chronic laryngitis as the result of atrophic rhinitis or of chronic alcoholism, or it may be the incipient lesion of tuberculosis, but such a condition in incipient cancer is extremely rare, though not entirely unknown. The cancers causing a swelling of the interarytenoid space are usually those which have their origin at the lower end of the pharynx and the beginning of the esophagus and secondarily invade the larynx, although they may do so early in the disease and the laryngeal symptoms may be the initial ones. A unilateral thickening at the posterior commissure and a limitation of the movement of one of the arytenoids is more apt to be due to cancer or syphilis than to a non-specific inflammation. The microscope is of little value in these cases owing to the difficulty in procuring a piece for examination, and when obtained the report is frequently of a doubtful nature. Pachydermia verrucosa of the larynx, a thickening of the surface epithelium, as pointed out by Virchow at the time of the Emperor Frederick's illness, frequently presents very puzzling histologic pictures closely resembling epithelioma. As pointed out by Fraenkel, it is impossible to know the nature of a tumor of the laryngeal ventricles until it has so infiltrated the tissues that an operation, in the event of malignancy, is out of the question. It pushes the membrane covering it into the lumen of the larynx and is itself hidden from view. Such an appearance may be also due to a gumma, a tuberculoma, a so-called prolapse of the ventricles, or some rare form of tumor of a benign character. I have seen several such cases which, although exceedingly puzzling, did not prove to be malignant. It is impossible to exhaust the subject of differential diagnosis of malignant disease of the larynx in its incipiency, when the diagnosis is so important, for nearly every case has some peculiar combination of symptoms of its own.

There are some cases, and unfortunately they form a very large proportion still, but a proportion which is steadily diminishing, which at the first glance are seen to be hopelessly inoperable. No question arises except as to when to do a tracheotomy and how much morphin to give. These cases, when followed throughout their whole miserable course, teach only one lesson, and that is that any hope, however forlorn, of freedom from local recurrence after a radical operation, is never to be discarded in any case. Death as the immediate result of an operation offering such a hope is not to be regarded as an entire defeat, but rather as the less of two evils. When there is a chance for life the patient should be told the truth and all the pros and cons explained to him. It must then be left with him to choose, and to choose promptly.

[7] Archiv. f. Laryngol., vi, 2.

between an operation which often entails such frightful mutilation and a more frightful lingering death. Suicide has occasionally been chosen by patients who have recovered from a laryngectomy and found life without a larynx unbearable, and it has been urged by some surgeons of great experience that total laryngectomy results in a condition worse than death, and is therefore an unjustifiable operation. Other surgeons think differently and, what is perhaps more to the point, this view is not the universal one with patients who have undergone the operation. At any rate, it does not seem to me that it is the province of the surgeon to decide for such an individual whether or not life will be worth the living.

I conceive that to be a question between the patient and his Maker. Without operation death, as the result of the disease or of his own act, leaves him with little choice. After a so-called successful operation he does have a choice between life such as it is and death. It may be said that this question does not always arise in every operable case of laryngeal cancer. It is exceptional when it should not be considered. As has been said, it is impossible to be sure from the laryngoscopic image that a malignant growth, however apparently limited, has not so far extended as to make anything less than a total laryngectomy manifestly a futile operation. Hence the patient must usually be prepared beforehand for this eventuality.

It will perhaps not be well for me to enter into further discussion of the many points involved in this subject of operation for laryngeal cancer, either as to the statistics of the results of operaton, or as to the questions of operative technic and the post-operative treatment. With these I have had but little personal experience. As to an artificial larynx, so far as my observation goes, nature usually makes a better substitute even when there is no air path left from the lungs to the mouth, and the patient breathes permanently through a tube or through a trachea stitched to the episternal notch. Some of you are doubtless familiar with recent cases which have regained all intelligible voice produced by means of air forced from the pharynx, after being partly swallowed, past some fold of vibrating mucous membrane. The results in these cases are surprising.

73 Remsen Street.

Correspondence.

Divided Authority in Yellow Fever.

NEW YORK, June 29, 1899.

To the Editor:—No little popular interest has been aroused in New York by the announcement promulgated by Quarantine Officer Doty of the discovery of a serum which is believed to be prophylactic against yellow fever and may be considered to have curative value. This has become known through the announcement which Dr. Doty gave to the daily press, for the medical pronouncement has yet to be made in some one of the professional papers.

The gist of the discovery set forth by Dr. Doty appears to be that his bacterial assistant, Dr. C. B. Fitzpatrick, has succeeded in isolating a germ or micro-organism from certain cases of yellow fever which were detained at the quarantine station on Swinburne Island in 1897, and that from the cultures of this germ he has produced an efficient serum.

In this announcement Dr. Doty rather detracts from the originality of the discovery by making the statement that a former assistant of Giuseppe Sanarelli has declared that this germ and its counteracting serum are identical with those discovered two years ago by Sanarelli in his researches at Montevideo. It is said that Sanarelli has had the opportunity to supplement his laboratory experiments by conducting tests of inoculation and treatment on human subjects supplied him by the government of Uruguay from its institutions for the insane. Yet the last reports from the River Plata are to the effect that the antiamarillic serum of Sanarelli has resulted by no means as well as its discoverer expected. In view of this fact it seems that the discovery announced by Dr. Doty amounts to no more than the performance in New York of work not only already done in Montevideo but also sufficiently tested on the South American coast to give reasonable grounds for doubting its value.

Apart from this feature there are other topics which need some consideration.

In the first place, Dr. Doty, health officer of the Port of New York under the state government, says that the work has been carried out to success by Dr. Fitzpatrick. But Dr Fitzpatrick appears as an assistant bacteriologist of the department of health of the city, he is therefore a city and not a state official. This is not the only instance in which the officials of the state and city bacteriological services have been found shifting back and forth from one appropriation to the other as need may be considered to arise.

Of more moment is the bearing of this work on the general service of the quarantine in the country. It must be remembered that Dr. Doty is a state official charged with the duty of preventing the incoming of contagious disease by sea into the State of New York. But as New York is the principal port of passenger entry on the Atlantic seaboard its quarantine is the quarantine of the whole country. This properly falls within the province of the Federal government, which has provided in its marine-hospital service an efficient system of protection, with agents in all the principal shipping ports from which disease might approach the United States. It is not considered that any study put by Dr. Doty and the New York State quarantine on the germ of yellow fever can be considered as impeding the Federal Quarantine of the Marine-Hospital service, and in the present case nothing has yet been done but the duplication of work and expense in line parallel with that already in hand in the Marine-Hospital work. No one would wish to impede the work of research, no matter by whom done, but it is proper to call attention to a chance of difficulty which is not as remote as it might seem to those who have not the opportunity to watch the practical operations of such dual systems of precaution. Suppose that Dr. Doty had not only announced an interesting scientific discovery but had declared that he would adopt it in his department of work. He has apparently a perfect right to do so. If he should choose to establish his, or Dr. Fitzpatrick's, or Sanarelli's, antiamarillic serum as a cure for yellow fever there is nothing in the law of the state to interfere. He might, if one of the transports from Cuba were to come to quarantine with yellow fever aboard, as may well be the case at any time, decide to inject his serum to cure the sick and to produce immunity in those who have been exposed and have not yet been attacked. If this were done and the serum should prove as ineffectual as it is reported from Montevideo to be, it is easy to see that a number of danger centers would be incorporated in the community of not only New York State, but of even distant states to a distance regulated only by the speed of railway travel and the period of incubation of the germ. Yet if such a mistake were in contemplation it would be seen that the Federal quarantine would take active steps and protect not only New York but every other state which might be endangered, and it would do this without much consultation with the local authorities.

This may seem an exceptional contingency and so remote

as not to need consideration. On the contrary such an event has already happened, not in New York, but at a port similarly situated on the outer edge of the continent—San Francisco. Here the situation was the same as at New York; there was a local quarantine whose officers were responsible only to the State of California. Some few years ago the State quarantine admitted to pratique a vessel from an Oriental and infected port. The Federal authority protested and in the end interfered. The strained relations were taken into the courts and finally settled in favor of the Federal system.

Now, such a state of affairs might arise in New York, for the same conditions exist. It would be all the more likely because the yellow fever serum is no new thing to the Marine Hospital surgeons. They have already had it under examination and have pronounced by no means in its favor.

Dr. Fitzpatrick says that the bacillus which was found in large numbers in connection with the cases of yellow fever under his examination at Swinburne Island is scarcely to be distinguished from bacillus coli communis. Under the microscope they look the same and they take the stain in the same way; in fact it is probable they would not have been considered specific of the yellow fever if the subjects had exhibited a sufficient supply of other bacilli not yet identified with any other disease. To this bacterium has been assigned the name of bacillus icteriodes. The bacillus has been recognized as that on which Sanarelli has employed his time, the recognition having been certified to by a former assistant of the bacteriologist of Montevideo. In default of a decisive method of identification by the microscope the only means left of proving the specific nature of the bacillus icteriodes as associated with the causation of yellow fever is by the result when administered to small animals. Here there is disagreement. Dr. Fitzpatrick and Dr. Sanarelli claim that small animals show the characteristics of yellow fever when under the intoxication of the bacterium which they have isolated. Other authorities deny this and produce their own experiments in proof of their contention. Of course, it is understood that if bacillus icteroides is not the specific germ of the yellow fever or is not a different organism from bacillus coli communis—which even its most ardent supporters admit that it most closely resembles—then the serum which is prepared through its employment does not carry immunizing or curative value in yellow fever.

Sanarelli's antiamarillic serum has not passed into its second year without meeting opposition. It has been under study by, among others in this country, the Army Medical Museum in Washington. The distinguished bacteriologists who have there been conducting researches have reached the conclusion that the micro-organism on which Sanarelli's, and therefore the New York investigator's, serum depends is akin to hog cholera and therefore is not specific of yellow fever. It thus appears that the most that can be claimed for the discovery which Dr. Doty communicated to the press is that it amounts to no more than the successful production here of what Sanarelli produced in 1897 in Uruguay. But that serum has been discredited by competent authorities in this country and elsewhere, particularly on the South American coast, where the opportunities for practical application of the serum have been abundant. W.

Illinois Society for Prevention of Consumption.

CHICAGO, June, 28, 1899.

To the Editor:—One week ago there was organized in this city a society having for its object, as its name indicates, the prevention of tuberculosis. Relative to this topic and apropos of it is what the JOURNAL and the AMERICAN MEDICAL ASSOCIATION has advocated for several years, viz., that the United States Government should have a department of public health and a competent scientific physician as medical secretary of the same. In this respect the Government is behind the times.

At the Columbus meeting of the ASSOCIATION, Dr. Joseph M. Mathews, in his presidential address, among other things stated, "That it was incumbent upon the ASSOCIATION as far scientific investigation can do so, to eliminate tuberculosis from the land, a disease so dreaded in character that is actually does remove yearly one-seventh of the population of the universe."

I have often thought that statistics are sometimes imaginary, and not as reliable as we would desire, but Dr. Mathews' statement in this respect is acknowledged by the scientific world to be approximately correct, so much so that the international conference which was held in Berlin last month to consider this topic arrived at the same conclusion, as have other analogous scientific organizations, etc.; the result of this latter congress, as we are all aware, is that much good has already been effected.

We, as scientists, veterinarians, public officials, lawyers, merchants, dairymen, and others, who were represented at the meeting organized one week ago for this cause, should unite and co-operate in stamping out this dread malady.

The old maxim, "prevention is better than cure," certainly applies with equal force and greater efficiency to tuberculosis. I quote again from Dr. Mathews' address, "That a committee be appointed from the AMERICAN MEDICAL ASSOCIATION to prepare a careful report on this subject and submit the same to the next session of Congress."

The attention of Congress has been called to this appalling fact year after year for several years, by the physicians throughout the United States, and particularly by the special committee of the ASSOCIATION, which was appointed in 1892, whose bill was endorsed by many scientific bodies of our country, advocating the idea of a department of public health for this nation, having a proper, able, and scientific medical secretary at its head to rank in dignity with other cabinet officials; had this been done years ago, the United States Government, through its department of public health, would have accomplished incalculable benefit in educating the people in preventing the disease, and thus would have been the means, possibly, of saving thousands of precious lives.

All Europe at the present time is on the alert regarding the great importance of preventing consumption. Throughout England various scientific associations have awakened to the great importance this subject deserves. We should not only devise the best methods of prevention, but our Government, state and municipal authorities should adopt measures for the care of this class of its citizens. That pulmonary tuberculosis is contagious under certain conditions is a well-known fact. Hence it is necessary to adopt measures to prevent its communicability to the healthy classes.

As to management and treatment, when tubercle bacilli are discovered in the sputum of a patient, a change of climate, all other things being equal, is perhaps the first *sine qua non* thought of. To eradicate or kill the germs is what is most desired. In pursuance of this, we must be careful not to hasten a patient's death by isolation and other methods. I am a profound believer that fully 20 per cent. of the cases of pulmonary tuberculosis are amenable to treatment that will result in recovery under suitable climatic conditions and the best hygienic environments. This is aside from any form of scientific treatment with drugs, though thorough and scientific in every detail, that might aid in increasing the percentage of recoveries.

I am a believer, also, contrary to what we are taught nowadays, that pulmonary tuberculosis is, or should be, classed as a hereditary disease—not that I desire to be understood that every case is one of heredity, and even though a hereditary taint be present in a family, that recovery should not be anticipated. Physical influence, and an optimistic view, as

much as is consistent, should enter into the cure, probably of every class of patients. My desire in the near future is to see a national department of public health where in the nation's laboratory, not only tuberculosis, but all other constitutional diseases that are preventable can be studied and investigated: indeed, where everything all along the line can be scientifically studied and statistics established irrefutably tending to "build up" the health and thereby promote the longevity of future generations and our citizens.

Very respectfully yours,

LISTON H. MONTGOMERY, M. D.

Antivivisection.

SAN FRANCISCO, July 3, 1899.

To the Editor:—It is wise to remember in the "between times," that the present seem to be years of surprising activity on the part of the many "antis." That the "antivaccinationist" and the antivivisectionist" will return from their summer vacations with renewed energy of bigotry, is in all probability certain. Being but human after all, they are subject to fatigue from overwork and senseless excitation: and also they are equally amenable to the recuperative processes of a vacation, during which lapse the people may be vaccinated or the scientific man may do some animal experimentation. But it is not well to think that the energy derived from the summer's rest will not be manifest in the fall and winter, and therefore to forget the unpleasant fact that even amongst the genus *homo sapiens* (Heaven save the mark "*sapiens!*"), are many animals which work to the evil of the race of man. When any defensive or offensive weapon, with which these "anti" gentry may be combated or attacked comes to hand, it should be carefully kept, even if encountered by the wayside during a truce in the fight. In other words, "In the time of peace, prepare for war." Some little ammunition was manufactured at the recent annual meeting of the Medical Society of the State of California, and as this sort of ammunition serves to supply more than one gun, it should not be overlooked or forgotten.

During the discussion on a paper dealing with the subject of "Ovarian Transplantation" and based entirely upon original research, Prof. Le Conte, who was present and took an active part in the discussion, was asked to express his views on the subject of vivisection. He replied as follows: "In the question of vivisection, the trouble is that the contestants do not understand one another. On one side we have men in whom sentiment overbears judgment, and who, therefore, cannot appreciate the scientific position. On the other hand, scientific men and physicians do not make sufficient allowance for the noble sentiment which underlies the agitation. When such men as Alfred Wallace and Lord Coleridge are found on the side of the antivivisectionists, there must be some noble sentiment at the bottom of the agitation. What is it? It is, of course, *universal sympathy with all nature*, and especially *with all living things*. Surely this is one of the highest sentiments that can fill the human heart. I am sure we are not a whit behind them in our estimate of the transcendent value of such sympathy. All we insist on is that, to be rational, it must be in proportion to the grade of life. I will give two examples illustrating my point of view:

"Some years ago I was discussing this subject with a distinguished lawyer in San Francisco, a man of splendid ability and exquisite taste in literature and art, but unappreciative of scientific methods. He was an ardent antivivisectionist. 'Suppose,' said I, 'In a large city like London or New York, cholera or typhoid fever had just broken out: the vital question would be: How is the disease promulgated? There are two ways in which it may be decided—the one by experiment, the other by observation. By the one method we sacrifice ten or twelve animals, under conditions which we control, and come to the conclusion that the disease is promulgated by drinking water. By the other method we passively observe the course of the disease in relation to the several sources of water-supply, and, after the sacrifice of thousands or tens of thousands of human lives, we come to the same conclusion. Now, which way is the more merciful? Which violates our sympathetic natures the more?'

"A few weeks ago I was discussing the same subjet with a very intelligent and estimable lady. She expressed great surprise that I, whom she considered as a tender-hearted man, should defend vivisection. I knew that she was very fond, perhaps too fond—some of her friends think absurdly fond—of a pet dog. 'Would you not,' said I, 'kill a thousand fleas for the comfort of your dog? For the same reason I would sacrifice a thousand dogs for the life of one man; how much more, then, for the good of humanity. I might have added—but this would have been too hard on her—'Not that we love dogs less, but man more.'

"I repeat then, let us have as much sympathy as possible with life; the more the better, but let it be in exact proportion to the grade and value of life."

This discussion of the question of vivisection by Prof. Le Conte, himself a member of the medical profession, was particularly in order, following the paper read, for the paper was based entirely upon animal experimentation and showed results that warrant in the fullest sense the continuation of the work. If postcastration atrophy can be prevented, as was demonstrated, and if transplanted ovary takes on the nature and vitality of the host, as seemed to be pretty clearly indicated, then the expenditure of a few rabbits and dogs, under conditions where the questions of pain and distress are entirely eliminated, would bring in an immense return in the shape of suffering saved to humanity.

Sympathy with life we all have and must have; but let this sympathy with life as suggested by Prof. LeConte, be accurately gauged to the grade of life and value of the animal in the scale of life.

Paraxanthin Theory of Poisoning.

CINCINNATI, June 27, 1899.

To the Editor:—You do me great injustice in your paraxanthin editorial in the JOURNAL of June 24. In the heading you use the word "disprove" while Putnam and Pfaff only claim that their research "indicates," etc. Dr. Pfaff, in the original title of his paper, used the word "disprove," but after my discussion of his paper, which you have not seen, he changed the title to read "indicates." The facts are that the leucomain theory of the origin of migraine is now stronger than ever, and Dr. Pfaff, after my discussion of his paper, did not claim that he had disproved the theory. In a forthcoming paper I shall make this matter plain, and in the meantime I refer you to the discussion of Dr. Pfaff's paper for further information. The use of the word "disprove" is most unfortunate in view of the large circulation of the JOURNAL. I am sure, however, you meant no intentional wrong.

Very truly yours,

B. K. RACHFORD, M. D.

AN OPERATION on an insane patient at the Wisconsin State Asylum at Mendota, for the relief of perforative peritonitis, revealed in the stomach and intestines a half pound of nails of all sizes, two pocket-knife blades and several twisted pieces of wire. Some of the nails were extensively corroded, showing that they had probably been in the stomach for some time. As far as saving life was concerned, the operation, owing to the advanced disease and serious nature of the lesions, was a failure, but the findings are interesting.

Current Medical Literature.

Annals of Gynecology and Pediatry, June.

1.—*Celiotomy for Conditions Complicating Typhoid Fever. J. Wesley Bovée.
2.—*What Can We Promise from Operative Treatment of Cancer of Uterus. E. E. Montgomery.
3.— Deaths after Abdominal Celiotomy. W. J. Smyly.
4.—*Consideration of Parenchymatous Inflammations of Mouth and Tongue (concluded). J. L. Goodale.
5.— Hygiene of Public Schools. L. W. Dean.

Obstetrics (N.Y.), June.

6.—*Inversio Uteri Complicating Placenta Previa: Etiology and Mechanism Considered. Rudolph W. Holmes.
7.—*Picture-taking in Three Dimensions. Charles Jewett.
8.—*Physical Diagnosis in Obstetrics (concluded). Edward A. Ayers.
9.—*Frequency of Contracted Pelves in First Thousand Women Delivered in the Obstetric Department of Johns Hopkins Hospital. J. Whitridge Williams.

International Medical Magazine (N.Y.), June.

10.—*Case of Traumatic Effusions of Hip joint. C. G. Cumston.
11.—*Pathology of Gall-stones. Joseph McFarland.
12.—*Concerning Immunity and the Use of Normal Non-immunized Serums. W. Thornton Parker.
13.— Functional Disturbances of Ocular Muscles. W. L. Pyle.
14.— Diagnosis and Treatment of Chancroid (soft Chancre). J. D. Thomas.
15.— General Consideration of Mucous Membranes of Upper Respiratory Tract. D. B. Kyle.
16.— *Important Quantitative Tests of Stomach Contents. Boardman Reed.

Post Graduate (N.Y.), June.

17.—*Etiology and Treatment of Chorea. Jos. Collins and I. Abrahamson.
18.—*Use of Oxygen with Ether for Anesthesia. C. S. Cole.
19.—*Address. F. Van Fleet.

Medical Monographs (Topeka, Kans.), May.

20.—*Mutual and Intimate Relationship between the Eye and the Nervous System. F. C. Hotz.
21.—*Iritis. J. E. Minney.
22.—*Granular Lids. H. L. Alkire.
23.— Refraction of Trachomatous Eyes. E. E. Hamilton.
24.—*Dry Electric Uniform Heat as a Therapeutic Agent in Ophthalmology. F. B. Tiffany.
25.— Report of a Case of Dermoid Tumor of the Conjunctiva and Cornea. J. W. May.
26.—*Trachoma. Emanuel F. Snydacker.

Alabama Medical and Surgical Age, June.

27.— Medicine as a Profession. W. L. Bullard.
28.— Epidemic of Typhoid Fever in Glen Vulcan, near Riverton, Ala., in 1896. Geo. T. McWhorter.
29.— Ancient vs. Modern Therapeutics. John R. Baer.
30.— Etiology and Diseases Most Common to Escambia County. S. C. Henderson.
31.— Treatment of Asthma. Robert C. Kenner.
32.—*Historian's Address. J. W. Heacock.

The American Gynecological and Obstetrical Journal (N. Y.), June.

33.—*Perineal Laceration and Its Immediate Repair. Frank C. Hammond.
34.—*Tuberculosis of the Mesenteric Glands. Reuben Peterson.
35.—*Three Interesting Cases. A. J. Downes.
36.—*Clinical Significance of Peptonuria in Pelvic Abscess, with Report of Illustrative Cases. W. Frank Haehnlen.
37.—*Further Report on Implantation of Ureters in Rectum, with Exhibition of Specimens. Franklin H. Martin.
38.— Gonorrhea of External Genitals in Female. A. B. Tucker.
39.— Manual Dilatation of Cervix Uteri. Daniel Longaker.
40.—*Remote Post-operative Pelvic Conditions and Their Symptoms. G. A. Kletzsch.

American Medical Quarterly (N. Y.), June.

41.—*Disease in Sigmoid Flexure. Jos. M. Mathews.
42.—*Some Facts Concerning Treatment and Medical Complications of Typhoid Fever. H. A. Hare.
43.—*Experiences in Intestinal Surgery. M. D. Mann.
44.—*Fat and Fecundity. C. A. L. Reed.
45.—*Close Relation Between Nasal and Cranial Cavities as Cause of Brain Disease. Wm. C. Krauss.
46.—*Hygiene of Bedroom and Bedstead. Lawson Tait.
47.— Ointment and Pastes. Ernest Wende.
48.— Effects of Modern Small-arm Projectiles. C. B. Nancrede.
49.—*Correction of Nasal Deformities by Subcutaneous Operations. J O. Roe.
50.— Case of Elephantiasis of Penis. G. H. Fox.
51.—*Tuberculosis of Urinary Tract. A. Vander Veer and W. G. MacDonald.
52.— Septic Wounds and Diphtheria. A. F. Rodgers.
53.— Sphere of Nutritives in Typhoid Fever, Pneumonia and Gastro-intestinal Diseases. C. A. Dundore.
54.— My Experience with Protonuclein. A. B. Farnham.
55.— Artificial Feeding of Infants. A. S. Everett.

Texas Medical News (Austin), June.

56.— Ovarian Tumors. A. J. Smith.
57.— Typhoid Fever. J. C. Holman.
58.— Treatment of Granulated Lids. Frank D. Boyd.

National Medical Review (Washington, D. C.), June.

59.—*Case of Carcinoma of Esophagus with Partial Stenosis Due to Extra Esophageal Metastasis. E. B. Behrend.

Southern Medical Journal, June.

60.— Treatment of Urethral Stricture by Electrolysis. Julius F. Lynch.
61.— New Method Employed for Relief of Impaired Hearing, Especially the Use of Phonograph, Vibrometer, Vibrophone and Metronomic Ear Masseur. L. J. Lautenbach.

Modern Medicine (Battle Creek, Mich.), June.

62.—*Relations of Tobacco Using and Other Drug Habits to Alcoholic Intemperance. J. H. Kellogg.
63.—*Nitrogen Requirement of the Human Body. G.H. Heald.
64.— Dietetics in Diseases Affecting Nutrition. A. J. Sanderson.

Journal of Medicine and Science (Portland, Me.), June.

65.— The Passing of the Provincial Surgeon. Franklin C. Thayer.
66.— Leucorrhea and Its Treatment. Robt. C. Kenner.
67.— Maine's Materia Medica and Its Relation to the Summer Resort Season. E. H. Judkins.

Pacific Record of Medicine and Surgery (San Francisco), June 15.

68.—*Contribution to the Study of Antral Disease. J. D. Arnold.
69.— Case of Melanosarcoma of the Conjunctiva; Death. Geo. C. Pardee.
70.— Empyema of Sinus Frontalis. F. Fehleisen.
71.—*Ocular Neurasthenia. E. J. Overend.
72.—*Two New Instruments for Measuring the Monocular Field of Fixation. F. B. Eaton.
73.— Dietetics in Diseases Affecting Nutrition. A. J. Sanderson.
74.— Hydatid Cysts. Thos. G. Inman.
75.— Recent Work in Clinical Microscopy. A. L. Ryfkogel.

Dominion Medical Monthly (Toronto), June.

76.—*Mistakes in Gynecology. G. R. Cruikshank.

Medical Bulletin (Phila.), June.

77.— Doctorate Address to Graduating Class of Medico-Chirurgical College, Philadelphia. Jos. M. Mathews.
78.— Spiritual Aids to Medical Science. Jos. Krauskopf.
79.— Tinea Capitis: Scabies: Alopecia Circumscripta. John V. Shoemaker.
80.— Laparotomy: Obstruction in Upper Portion of Rectum: Artificial Anus for Three Weeks. C. M. Phillips.

N. C. Medical Journal (Charlotte), June 5.

81.— Practice of Medicine. H. S. Lott.
82.— Antiseptic Midwifery. W. W. McKenzie.
83.— Asepsis and Antisepsis in Surgery. Goode Cheatham.
84.— Chronic Gastro-Intestinal Catarrh. W. J. McAnally.

Northwestern Lancet (St. Paul), June 15.

85.—*Hernia. A. McLaren.
86.—*Subinvolution of Uterus. F. J. Campbell.
87.—*Some Abdominal Operations in Country Practice. Thor Moelfer.
88.—*General Melanosis. R. O. Beard.
89.— Alcohol. W. S. Leech.

Columbus Medical Journal, June 13.

90.—*President's Address, Delivered before the Ohio State Pediatric Society. Dickson L. Moore.
91.—*Why the Child Strains at Stool and the Way to Its Relief. Thos. Chas. Martin.

Va. Med. Semi-Monthly (Richmond), June 23.

92.— Case of Carcinoma of Breast. Elmer Sothoron.
93.— Prevention and Treatment of Pelvic Inflammation in the Female by the General Practitioner. R. R. Kime.
94.— Some Interesting Cases in Rectal Surgery. A. B. Cooke.
95.—*Four Cases of Infantile Monstrosities in the Same Family. William M. Hestle.
96.— Continued Fevers of North Carolina. Benjamin K. Hays.
97.—*Treatment of Epileptics in Colony. J. P. Edgerly.
98.—*Treatment of General Suppurative Peritonitis. Stuart McGuire
99.— The Materna—A New Device for the Home Modification of Milk. Henry E. Tuley.

New York Medical Journal, July 1.

100.—*Three Steps in the Tuberculous Process in Children. David Bovaird.
101.— Shadowgraphs of Intestinal Villus of the Cat. J. W. Hartigan.
102.—*On Importance of Operation in First Stage of Thrombosis of Sigmoid Sinus (following Acute Purulent Otitis Media), with a Report of Three Cases. Gorham Bacon.
103.—*Comparative Test of Mixed-Fat Emulsion and Cod-liver Oil at the Hospital for Ruptured and Crippled, New York. W. S. Mersereau.
104.— The Christian Scientists: What Shall We Do with Them? F. Julian Carroll.
105.—*Excision of the Right Superior Cervical Ganglion of the Sympathetic for Glaucoma, with Report of Case and Review of Literature of the Surgery of the Cervical Ganglia. James Moores Ball, Edwin C. Renaud and Willard Bartlett.

The Medical News (N. Y.), July 1.

106.—*A Collective Investigation of Yellow Fever in the Island of Cuba. D. T. Lainé.
107.—*Crural Thrombosis following Aseptic Celiotomy. Henry C. Coe.
108.—*Otitis of the Exanthemata from the Standpoint of the Pediatrician and General Practitioner. J. Henry Truitnight.

The Boston Medical and Surgical Journal, June 29.

109.—*Address: The Expansion of Medicine. E. H. Bradford.
110.—*The Non-retarding Action of Combined Hydrochloric Acid on Starch Digestion. A. Enston.
111.—*Location of the Right and Left Borders of the Heart by Distance from the Median Line. Francis H. Williams.
112.—*Chrysarobin a Specific for Warts. G. W. Fitz.

Medical Record (N.Y.), July 1.

113.—*Notes on the Treatment of Yellow Fever with the Blood Serum of Bacillus Icteroides, and its Preparation. Chas. B. Fitzpatrick.
114.—*Further Contribution to Exclusion of the Intestine. Frederick Kammerer.

117.— Grooved Perineal Canula to be used as a Guide in Performing Perineal Sections in Cases of Urethral Obstruction. Raymond Guitéras.
118.— *Ill-effects of the Roentgen Rays as Demonstrated in a Case Herewith Reported. Daisy M. Orleman.
117.— Cystoscopy and Urethral Catheterization in Women. E. N. Liell.
118.— How to Retain your Grip on the Practice of Medicine. Sidney Davis.
119.— Foreign Bodies in the Throat. Herbert J. Hopkins.
120.— A Case of Acromegaly. A. Hymanson.
121.— An Unique Case of Pityriasis Versicolor. Wm. H. Gottheil.

Philadelphia Medical Journal, July 1.

122.— *Cavendish Lecture on the Etiology and Diagnosis of Cerebrospinal Fever. Wm. Osler.
123.— *Expansion of Medicine. E. H. Bradford.
124.— *Laboratory of Hygiene of the Vermont State Board of Health. J. H. Linsley.

Maryland Medical Journal, July 1.

125.— *Diagnostic Signus in Diseases of the Kidney. Joseph T. Smith.
126.— *To Heal Vaccination Sores. A. K. Bond.

Medical Review (St. Louis), July 1.

127.— Syphilitic Cutaneous Scars. A. H. Ohman-Dumesnil.

Cincinnati Lancet-Clinic, July 1.

128.— Report of a Case. A. D. Stapleford.

AMERICAN.

1. **Celiotomy for Typhoid Fever Complications.**—Bovee first remarks that until recent days typhoid fever was pronounced a contraindication to any grave surgical operation, but that more recently we have possibly gone too daringly in the other direction. He reports a case of salpingotomy and ventrosuspension of the uterus performed before the diagnosis of typhoid fever was made. The results were good and he thinks that his case, with those of Simpson and Cushing, demonstrates that relapse in typhoid fever may be produced by grave surgical operations, and that severe emergency operations may be done in this disease with a fair degree of safety, though ordinarily contraindicated.

2. **Operative Treatment of Uterine Cancer.**—Montgomery describes the condition and prospects for operation in uterine cancer, and concludes as follows: 1. Cancer of the uterus is a local disease in its origin which tends to invade the neighboring structures, but extends to the corresponding lymphatic glands much more slowly than in other parts of the body. 2. The chief dangers of relapse are from nests in the adjoining tissues, which have escaped removal, and reimplantation of fragments during the progress of the operation. 3. The data at our command forms no accurate basis on which to establish definite or positive prognosis. 4. From our present knowledge we must depend on the subsequent progress to determine the cure. If prolapse occurs it will most likely take place within the first six months. Should the patient escape two years, cure may be considered as having been established.

4. **Inflammations of Mouth and Tongue.**—Goodale considers the following phases of the subject: Suppurative inflammation of mouth and tongue, parenchymatous inflammation due to diphtheria bacilli; anomalies of circulation or angioneuroses; acute circumscribed edema of the mouth.

6. See abstract in JOURNAL, May 20, p. 1114.

7. **Picture-Taking in Three Dimensions.**—This article, of which the title gives an indirect hint as to its contents, is devoted to the subject of making casts of specimens of parts which it is desired to have reproduced for reference. The author thinks that in many cases they can supplement the rather more difficult pictures or drawings, and he describes the materials and methods which he would advise.

8. **Diagnosis in Obstetrics.**—This paper, begun in the May number, attempts to be a guide in antepartum, partum and postpartum examinations. The author considers pelvimetry, abdominal palpation, and gives a pelvimetry scale and table.

9. **Contracted Pelvis.**—Williams presents complete tables showing the frequency of this condition as noted in Johns Hopkins Hospital.

10. **Traumatic Effusion of Hip-Joint.**—This clinical lecture of Cumston's describes a case of traumatic effusion of the hip-joint in a man 21 years old who was thrown from a wagon on a curb stone. He was treated with a posterior splint and moderate extension. After four weeks the bandage was removed and passive motion begun, and the patient encouraged to make some active movements. Eight days later he was allowed to leave his bed and the result has been a nearly complete recovery. The diagnosis of the condition is discussed at length.

11. **Pathology of Gall-Stones.**—McFarland describes the pathologic conditions connected with gall-stones, the inflammatory and irritative conditions in the gall-bladder, the obstruction of the biliary ducts, cystic, hepatic, and common, the possibility of perforation and fever which often complicates diagnosis. He reviews the literature, quoting quite largely from Murphy's paper on the subject.

12. **Normal and Non-Immunized Serums.**—Parker's article considers the natural antitoxic action of the non-immunized or normal serums, and the argues at some length in favor of the view that they contain protective proteids.

16. **Quantitative Tests of Stomach Contents.**—Reed describes the simpler method of making quantitative tests of the stomach contents, the total acidity, the excess or deficiency of HCl, and the combined chlorin. He describes Toepher's method in detail.

17. **Etiology and Treatment of Chorea.**—Collins and Abrahamson, while they mention the various forms of chorea, including Huntington's and Dubini's chorea, the tic, habit, senile and secondary choreas, confine their paper to the discussion of the ordinary type of Sydenham's chorea. They find that it is pre-eminently a disease of the young, though it may occur in mature life; that it predominates in the female sex in the ratio of three to two; that it seems to have certain racial preferences, being specially found in Jews. As to its seasonal occurrence, their figures are not exactly in accord with others and indicate nothing positive in this respect. Their statistics are also non-committal as regards the effect of school overwork, which is undoubtedly a factor. Chorea is hereditary, at least it seems to have a relation to neuropathic conditions and rheumatism in the family history. The direct action of rheumatism is of more importance, they think, than has been held to be the case by some authors. It is possible that chorea is a metarheumatic manifestation. The condition of the heart in this disorder may indicate previous rheumatic dyscrasia. Their studies oppose the views that it has any direct relation to infectious diseases except rheumatism. The exciting cause is generally some form of physical trauma such as fright, acute worry, highly wrought anticipation—very rarely gastro-intestinal irritation. It is especially liable to relapse. Brief mention is made of chorea gravidarum, which, like other choreas of adults, is a more serious condition, being, in fact, one of the gravest varieties. The mental faculties are involved to a certain extent in a certain proportion of cases. The chorea indicating a neuropathic predisposition is a form rather more serious than the mere disease ordinarily would seem. The treatment is simple. Rest is the most important measure. The patient should be put to bed and kept there if possible, but at least be made to keep longer hours in bed. Careful attention to the diet is necessary. Young children who have been accustomed to a mixed diet should be put at once on a milk diet carried to the extreme extent of tolerance. In almost every case the bulk of the diet should be milk and cereals. Any digestive complication or constipation should be met with the proper measures and a cold wet compress over the abdomen has often a very beneficial effect. Sprinkling of the spine with cold water on rising, followed by vigorous rubbing, is also very useful, and the wet pack before retiring is another measure that may be used. The medicines that can be used are few. The most important are arsenic, antipyrin, quinin, iron, exalgin and bitter tonics. Exalgin is of greatest service in the early stages of the disease in doses of from 5 to 3 grains repeated every five hours for children under 10 years. Chorea in pregnancy has much the same treatment, but is often accompanied with vomiting which will have to be specially met. It requires vigorous treatment from the start. While chorea is generally a self-limited disease, some cases are protracted and require the general treatment employed for neurasthenia. Electricity and the actual cautery have been recommended. Their value will probably rest in the mental effect produced.

18. **Oxygen With Ether for Anesthesia.**—Cole takes up this subject, on which he made a prior report in 1895, and speaks very highly of the value of oxygen combined with ether for anesthesia. Its only disadvantages are the expense, necessity for skilled administration and the possibility of not quite as effective anesthesia as with ether alone. This last is easily remedied by leaving off the oxygen. Its advantages are that the patient takes the anesthesia with much less

fear and more comfort, and more readily than ether alone. There is seldom any irritation of the air passages or the lungs, which makes it easy to keep up a continuous administration of the drug. There is practically no cyanosis. The blood may flow a little more freely, but he finds this not detrimental and thinks that if there has been any difference in the time required for anesthesia it is in favor of this combination. As regards the recovery from anesthesia, it is quicker, more comfortable and more complete than when ether alone is used. He reports twenty-four cases briefly.

19. **Medical Practice in New York.**—Van Fleet's address is in opposition to Senate Bill 644, as amended in Assembly bill 2338, concerning medical practice in New York State.

20. This paper was printed in full in the Journal, May 20, p. 1137.

21. See abstract in JOURNAL, May 13, p. 1112.

22. **Trachoma.**—Alkire considers trachoma as an infectious disease, favored by lower vitality, and he sums up the indications for treatment as follows: 1, absolute cleanliness and good hygienic surroundings; 2, improvement, if possible, of the nutrition of the body by correcting the existing abnormal conditions; 3, removal of the trachoma bodies and the use of antiseptic solutions in the eye; 4, correction of the refractive errors; 5, treatment of sequelæ according to the nature and indications.

24. See abstract in JOURNAL, May 13, p. 112.

26.—This paper appeared in the JOURNAL, February 4, p. 209.

32. **Address.**—Heacock's address was delivered before the Medical Association of the State of Alabama, at the annual meeting in April.

33.—See Abstract in the JOURNAL, April 15, p. 826.

34. Ibid, April 1, p. 710.

35. **Three Interesting Cases.**—Downes reports a case of urethral fistula following the palliative curettement of a cancerous uterus relieved by celiotomy and by freeing of the adhesions binding down the ureter. This is the first case found on record of such fistula following the palliative curettement of a cancerous uterus and the only one where the procedure adopted was ever carried out. The second case was one of primary and secondary celiotomy for kinking of the bowels at the sigmoid flexure; the occurrence of fecal vomiting after the second operation is sufficiently rare to be placed on record. The third case is reported only for its rarity and is that of varicocele of the right lateral wall relieved by operation.

36.—See abstract in JOURNAL, April 15, p. 836.

37.—Ibid, April 1, p. 709.

40.—Ibid, April 8, p. 765.

41. **Disease in Sigmoid Flexure.**—In this article, Matthews describes four conditions of disease of the flexure: 1, simple irritation due to stagnation of intestinal contents with consequent congestion, which is best treated by giving a brisk aperient and a thorough washing out with warm water or water mixed with a slight amount of boric or carbolic acid. If this treatment does not complete the cure, a mild astringent like fluid hydrastis, ½ oz. to 4 ozs. in water injected at bed time will probably finish the cure. Inflammation of the sigmoid is a somewhat more serious condition, an aggravation of the above described. Its treatment also consists of irrigation, mild astringents, and physiologic rest of the part. All mechanical irritations should be removed by aperient and injections. Then an astringent wash should be employed and later an oil preparation like the following: sweet almond oil, 1 pt., iodoform, 1 dram, subnitrate of bismuth, ½ oz. This preparation should be shaken each time and 1 oz. in a teacupful of warm water deposited in the flexure every night at bed time for a week, constituting the third week of treatment, after which the cure is generally complete. Ulceration of the flexure is shown by casts of epithelium and pus in the stools, constant desire to evacuate the bowels, loss of flesh, pain over the left inguinal region in back and thighs. More active treatment is required; after usual purging, an injection of 2 ozs. of water containing 10 grains of nitrate of silver to stimulate the ulcerated surface to granulation. After that use the boric acid or carbolized solution and about the third week substitute the iodoform and oil. Matthews does not consider a rigid diet necessary in these cases. He thinks a moderate amount of nutritious food is useful. Moderate exercise every day short of fatigue and special attention to the digestion and state of the bowels are other measures necessary. For cancer in the flexure the only curative method is resection, but colostomy or anastomosis around the flexure with a Murphy button or otherwise may be useful in some cases.

42.—See JOURNAL, July 1, p. 31.

43. **Experiences in Intestinal Surgery.**—This article, which is to be continued, gives a report of a rather remarkable case of a woman who underwent nine separate operations involving opening of the abdomen. The final one apparently produced a cure.

44. **Fat and Fecundity.**—Reed's paper is an elaborate discussion of the effects of the disturbances of the reproductive functions involved in obesity. The pathogenesis, course, diagnosis, prognosis and treatment of obesity are discussed. The reader is referred to the article itself as it is not easy to fully abstract it here.

45. **Nasal and Cranial Cavities and Brain Disease.**—Krauss calls attention to the dependence of disorders of the brain on those of the nasal and cranial cavities. The evil effects of deficient nasal respiration or of adenoids often have a very marked effect on the mental development, etc. He also calls attention to the bacteriologic importance of these cavities as routes of infection of the brain. He makes a plea for more careful attention to be given to the nasal mucosa than is at present the practice. The making of a nasal toilet should be a part of the daily toilet.

46. **Hygiene of the Bedroom and Bedstead.**—Tait, in his usual readable style, describes what he considers the right and wrong methods of furnishing the bedroom and of the construction of the bedstead. He describes the bedstead which he specially recommends and which he has named "the Lawson Tait bed." It is a simple iron structure.

49. **Corrections of Nasal Deformities.**—Dr. Roe's paper is a very fully illustrated surgical article giving various methods and results of operation for curing nasal deformities.

51. **Tuberculosis of Urinary Tract.**—The authors, Drs. Vander Veer and MacDonald, give here the results of study in thirty-four cases which are not themselves given in detail. Tuberculosis may appear in any part of the urinary tract as a primary infection. The two most frequent places of origin are the base of the bladder and the kidneys. From these, secondary infections occur. Primary tuberculosis, however, may be found elsewhere, for example, in the urethra. For purposes of diagnosis and treatment it should be considered from a dual standpoint: 1, as a local manifestation of a general systemic infection, and 2, as a purely local disease. This latter is the only one in which it can be considered from a surgical standpoint. The natural tendency of tuberculosis to heal is marked here as elsewhere, and many cases recover without removal of the infected parts under appropriate treatment, or spontaneously. Its early manifestations are very important. Vesical irritability with apparently normal urinary secretion is often an early symptom. Pain, before, during and after urination, particularly if referred to the perineum or middle of the urethra, is an important symptom. Hematuria occurs in more than half of the cases, and is often one of the first things to attract the notice of the patient. Pyuria, especially if intermittent and with an acid urine, calls attention to a possibility of tuberculosis and a spontaneous and intractable cystitis is also to be regarded as an indication. Retention is frequently a pronounced symptom of the early stages of tuberculosis, and as the disease advances, involving the deeper tissues, it is succeeded by incontinence. Neither of these, however, is constant. External physical examination gives very little assistance. The kidney is not often enlarged until the advanced stages of the disease. Instrumental exploration of the urethra or bladder should not be undertaken until one is satisfied that the urinary tract has been already infected. A most careful examination of the urine, apart from all local contamination, is essential, and where there is a failure to find the bacillus, inoculation of a guinea-pig is demanded. On account of the great danger of instrumental exploration, the authors seldom make but one examination, and that under the most careful aseptic precautions. Tuberculosis of the bladder

walls is most rebellious, and causes the greatest suffering. In eight cases operation by drainage was followed by cure in two and by pronounced improvement once, while the remainder were made more comfortable while they lived. The authors prefer the perineal route of operation as affording the easiest access and best drainage. In twenty-three cases of tuberculosis of the kidneys and ureter treated surgically, there were eighteen nephrectomies, with an immediate mortality of five; thirteen nephrotomies, with three deaths following operation, and three remotely from exhaustion or secondary nephrectomy. Of the thirteen cases operated on by nephrotomy and partial nephrectomy, seven died, and of the remaining six two are well after prolonged treatment; one has a permanent fistula discharging pus and urine, but is in fair general health, while the others recovered after complete nephrectomy. The authors' experience coincides with that of others, that nephrotomy has little value as a curative operation, but is valuable as a preliminary and exploratory measure; twelve cases recovered after complete unilateral nephrectomy, which they consider a very satisfactory result.

59. **Carcinoma of Esophagus.**—Behrend reports a case of carcinomatous disease of the esophagus with metastasis to the retroperitoneal glands and pancreas.

62. **Tobacco and Alcohol.**—Kellogg maintains that the use of tobacco is the fundamental vice of a large proportion of cases of alcoholic habits and he has for twenty years refused to undertake the care of any case of inebriety without first stipulating for the renunciation of the use of tobacco also The point that he especially makes is that the physiologic effects of tobacco are such as to give rise to a special craving for alcohol. His views are somewhat extreme as perhaps might be expected.

63. **Nitrogen Requirements of Human Body.**—Heald's paper is an argument for vegetarianism. He concludes from his ex parte study of the subject that the organism will maintain its nitrogen equilibrium with a smaller quantity of vegetable protein than of animal protein.

68. **Antral Diseases.**—In this article Arnold calls attention to the importance of diseases in the frontal sinus in cases of antral disorders, and he finds that in nearly 50 per cent. of all cases the infundibulum, which embraces the opening of the frontal sinus into the nose, is a grooved canal with a curvature in the direction of the normal opening of the antrum, and so enclosed by the projecting walls of the middle turbinated bone that it drains directly into the antrum of Highmore. He thinks that in every case of antrum suppuration, persisting after thorough drainage and thorough removal of the diseased bone, coexisting diseases of the frontal sinus will be found. He reports a case which led him to this discovery.

71. See abstract in JOURNAL, May 13, p. 1053.

72. Ibid, April 15, p. 823.

76. **Mistakes in Gynecology.**—Cruickshank's paper is a plea for conservative practice in gynecology. He thinks that the influence of other pathologic conditions should be looked for and that this fact in the zeal for operation is overlooked and neglected. Many patients, he holds, suffer through this oversight.

85. **Hernia.**—This article, which is quite practical in its treatment of the subject, goes over the whole matter of the operative treatment of hernia. McLaren first mentions the fact that most cases of strangulated hernia are necessarily operated on by the general practitioner and are seldom reported in print. He refers to the necessity of promptness and states that the appearance of the intestines is not always a perfect guide to the prognosis. The worst appearance is when they have a dark grayish tinge, especially if there are small dark greenish spots. He thinks that in this case we should possibly not attempt to make a resection at once, but form a fecal fistula and wait for a secondary operation to restore the continuity of the bowels. The symptoms of strangulated hernia are, first of all, vomiting. This is the sign which he would most rely on. Fecal vomiting, however, is not absolutely fatal, for he has seen it occur thirty-six hours before operation which was successful. He warns against pushing the anesthesia in these cases, for fear of aspiration pneumonia which may possibly occur. The other symptoms of strangulation are: collapse, sickening pain, constipation, absence of impulse in the tumor. As regards treatment, he would certainly first use taxis, not, however, continuing the manipulation even as long as half an hour, as advised by Erichsen. In case this fails he would not wait to try other methods but proceed at once to the operation, under the most perfect antiseptic surroundings possible. The method he describes is Bassini's, which he considers the best, as it is founded on the correct anatomic principle of restoring the obliquity of the canal and closing the internal ring to its former size. In femoral hernia the obstruction is generally due to Gimbernat's ligament, and he thinks that the best exposure can be made by following Poupart's ligament. In dividing the point of constriction, the knife should be turned upward and inward, making several superficial nicks for the purpose. In a fairly recent case a radical cure may be obtained by using either the purse string or Bassini's interrupted suture in closing the canal, and drawing Poupart's ligament and the pectineal fascia together. In strangulated umbilic hernia we should first make the incision over the lower part of the sac, as the action of gravity and the weight of the clothing tend to produce ulcerations and adhesions at this point. If operation is performed sufficiently early the mortality of strangulated umbilic hernia need not be greater than that in the femoral or inguinal varieties. He has had the best results in these cases with Fowler's figure-of-eight suture, just picking up the edge of the fascia and the upper loop, taking in the adipose and skin layers. This suture keeps the fascia in accurate apposition and can be removed at any time. He leaves it for two or three weeks.

86. **Subinvolution of Uterus.**—Campbell thinks that the element of the patient's neglect enters more largely into the causation of uterine subinvolution than is usually considered, especially after miscarriage. In cases with old cervical laceration he has found that operation within ten days after a miscarriage seemed to give him better results, and especially aided the involution of the organ.

87. **Some Abdominal Operations in Country Practice.**—Moeller's paper reports some eighteen cases of operation, all but four of which were done at the patients' homes under more or less disadvantageous conditions. The majority were gynecologic or hernia operations. One was a difficult and complicated case of suprapubic cystotomy. He remarks about the difficulty under which the country practitioner labors in these cases where the patient cannot go to avail himself of hospital advantages, or immediate operation is imperatively demanded.

88. **General Melanosis.**—Beard reports a case of widespread melanotic growths throughout the abdomen, pigmentation of the urine, etc. The diagnosis of melanoid sarcoma and a very unfavorable prognosis was given. Contrary to expectations the patient did well, and now, ten years after the discovery of the condition and seven years after the attempted operation of laparotomy for its relief, she is in improved health and the original tumor has lessened in size. The case, he remarks, is worthy of report because of the number and non-malignancy of its melanomata, because of the sudden generalization of the disease and the accompanying melanemia, and because it is, so far as he knows, unique in its apparent recovery.

90. **President's Address.**—Moore's address dwells chiefly on the subject of schools, the hygiene of these, and of juvenile homes and hospitals. In the latter he thinks under-feeding is not an uncommon error. As regards inspection of schools, contagious diseases are a matter of general health precaution and do not fall under this head. But the question of school morbidity, and especially that actually due to school life is a matter of great importance. He refers to exercises, hygienic and calisthenic, the latter of which are of special value in the year or two preceding puberty. He also briefly refers to the effects of adenoid vegetations on the physical and mental development of the child.

91. **Why a Child Strains at Stool.**—Martin describes the anatomy of the lower bowel in children and especially calls attention to the disproportionate length of the colon and its mesentery, the thinness and lack of muscular development of the bowels and the existence of the rectal valves as features which produce the difficult defecation in young children. In the normally formed infant, escape from these troubles is assured in the course of development, but the trouble and suffering that they produce should be alleviated if possible. Diet, hygroscopic suppositories, and fluid enemata to liquidify the intestinal con-

tents are of service, as is also massage over the abdomen, also over the region of the colon in such a way as to directly propel the contents toward the opening and reduce the obstruction caused by any overgrowth of the rectal valves. This can be done by dilatation accomplished by gently introducing the skilled finger, which also excites the mechanism of defecation. Prolapse of the bowel, which is not uncommon in infants, is to be managed by the employment of proper measures for its reduction and correct postures at the time of the passage. A flexed position favors prolapse, therefore, extension of the limbs should be encouraged, the child assuming the erect or horizontal extended position.

95. **Maternal Impressions.**—Hestle reports four cases of deformed infant monsters brought forth by one woman, in the course of six years. The credit is given to fright on the part of the mother from seeing an opossum.

97. **Treatment of Epileptics in Colony.**—In this article, read before the American Medico-Psychological Association, the colony plan of the treatment of epileptics is eulogized and it is claimed that it has amply demonstrated its value to the epileptic and to the public.

98. **General Suppurative Peritonitis.**—McGuire advocates early operation in the case of suppurative peritonitis after the diagnosis is made. It is impossible, he thinks, to deal with the surface involved through a single incision, therefore, he advocates multiple incisions for drainage, and thorough evisceration and irrigation of the bowels for cleansing purposes. In many cases the bowels will be found paretic and distended with gas, and for this condition he claims incision should be made, suturing it as soon as the gas escapes, and the bowels can be returned to the abdomen. Gauze strips should be employed and should be left in position as long as they are doing good. After-treatment is the same as in other cases of abdominal section. Rapidity of operation is most important, and while he thinks that perhaps his views will be considered as those of an extremist, only such heroic measures are likely to be generally followed by success.

100. **Tuberculous Process in Children.**—Bovaird, from an analysis of 75 cases of tuberculosis in the children's wards of the New York Foundling Hospital, found in no case any evidence of the entrance of the infection via the placenta or traumatisms. In no case were tuberculous lesions of the bronchial nodes absent nor in a single case was there infection of the intestinal tracts alone, though in one there might have been simultaneous infection by both routes. He reports four cases illustrating his views and sums up as follows: "The primary lesion of tuberculosis in children is regularly in the bronchial lymph-nodes or lungs. Combining Northrup's series with those described in this paper, we have: Infection of the respiratory tract (lungs or bronchial tubes), 148; infection of mesenteric lymph-nodes, 3; indeterminate, 49. As to early manifestations of tuberculosis in children, these are extremely indefinite and uncertain. Tuberculous infection of the bronchial lymph-nodes, as a rule, can not be diagnosticated. Latent tuberculosis is often roused and disseminated by the invasion of another disease (infection) such as measles, diphtheria, etc., the presence of tuberculosis not being suspected. The common type of tuberculosis in children is acute miliary tuberculosis—it may occur in well-nourished infants. The course of tuberculosis is not often confused with chronic bronchopneumonia or enterocolitis. The early manifestations are progressive emaciation, fever, and the presence of rales over the lungs. These are insufficient for purposes of distinction. The terminal lesions include: *a*. Extension of the tuberculous process in the bronchial lymph-nodes and lungs, resulting in the formation of abscesses, cavities, etc. *b*. Diffusion of the tuberculous infection, constituting acute miliary tuberculosis, the principal viscera being affected in the following order: spleen, liver, brain, kidney, heart. The involvement of the brain is most important, the meningitis being regularly fatal. *c*. When bone is involved and there is prolonged suppuration, waxy degeneration of the viscera may occur.

102. **Thrombosis of the Sigmoid Sinus.**—This paper consists of a report and discussion of three cases of thrombosis of the sigmoid sinus following acute otitis media. In two cases bacteriologically examined, in one the infection was due to the pneumococcus, and in the other the streptococcus was found. The author strongly condemns the use of remedies like antipyrin and phenacetin to reduce the temperature of patients suffering with suppurating otitis media or mastoid disease, as they are liable to mask the condition and impede the diagnosis, so essential for early treatment. The principal points to which he calls attention are as follows: The impropriety of giving antipyretics in all cases of suppurative otitis media; the value of a bacteriologic examination of the secretion from the external auditory canal in all cases. The importance of operating at the earliest possible stage after a diagnosis of thrombosis has been made; the use of the normal saline solution during or immediately following the operation for sinus thrombosis.

103. **Comparative Test of Mixed-Fat Emulsion and Cod-Liver Oil.**—This paper gives the results of experiments made in the Hospital for Ruptured and Crippled in New York, as to the relative value of the mixed-fat emulsions and cod-liver oil. A certain number of strumous children were selected, the only condition being that constitutional treatment was required in addition to the surgical measures in progress and that the children should remain in the hospital until the conclusion of the test. Thirty-two cases suffering from joint disease were placed upon the emulsion and twenty-nine similar ones on cod-liver oil, given regularly in such a way as to be most easily taken. The experiments continued over 13 weeks and changes were noted weekly in regard to the following points: weight, local condition or suppuration, activity about the ward, color, and general condition. Each of these points is discussed in detail and two cases are cited. The author concludes his paper as follows: To summarize briefly, we see that 64 per cent. of the patients in the emulsion cases were suppurating and several were in a desperate condition. Of these, 65 per cent. improved. Of the oil cases, in which 20 per cent. of the patients were suppurating and none was in a serious condition, 50 per cent. Improved. The weights, though continued through the whole experiment, were neither satisfactory nor conclusive, for reasons mentioned, with the exception of those for the first five weeks. These show the gains on the emulsion side to be nearly double and the losses about two-thirds those on the side of the oil. In color, 65 per cent. of the patients in the emulsion cases were improved, to be compared with 31 per cent. of those in the oil cases. Under general improvement, 68 per cent. of those in the emulsion group against 48 per cent. of those in the oil group, showed a gain, in spite of the much more serious condition of the former. In conclusion, it may be said that there seems to be a certain better appearance, impossible to classify, about the patients in the emulsion group, which is in advance of that which may be deduced from the notes, though they may show a striking gain over those in the oil group.

105. **Excision of the Right Superior Cervical Ganglion of the Sympathetic for Glaucoma.**—The authors of this paper report what they consider to be the first operation in this country to excise the superior cervical sympathetic ganglion for glaucoma. The ganglion was cut high up and all its branches severed and about one inch of the sympathetic below the ganglion was removed. The patient was immediately relieved from pain and the tension decreased to plus 1. Slight ptosis followed the operation. They think that the relief from pain alone will justify the operation and in glaucoma without complete loss of vision; they will operate upon the first favorable case. The paper concludes with a discussion of the literature on the subject and a brief bibliography.

106. **Yellow Fever in Cuba.**—Dr. Laine's paper is the result of a series of questions sent out to local practitioners of Havana in regard to the diagnosis, treatment, mortality, varieties, etc., of yellow fever. The majority appear to hold that diagnosis can be made within the first three or four days. As to the pathognomonic symptoms, there is a disagreement of opinion, but those who believe in their existence think that it is the syndrome that is pathognomonic rather than any one symptom. The treatment by Sternberg's method seems to have been pretty generally neglected in Havana and no regular system is followed. The mortality of fourteen physicians is an average of 23 per cent. and the majority of those replying to the questions consider the *fiebre de borras* and the acclimatization fever as varieties of yellow fever. The general opinion seems to be that the region of the wharves and water-front of Havana

is the most dangerous district of the city. As regards precautions the opinions are not very definite.

107. **Crural Thrombosis.**—Coe discusses in this article the question of crural thrombosis following aseptic celiotomy and reviews the question as to infection, which he thinks is unproved, publishing also a letter from Dr. Wm. H. Welch, who is of the same opinion. He reports six cases of his own observation where the foci of infection could not be found, and reproduces brief abstracts of a number of cases reported by Wyder.

108. **Otitis of the Exanthemata.**—The special point in Truitnight's article is the importance of early attention to otitis following infective eruptive disease.

109. **Expansion of Medicine.**—The annual address before the Massachusetts Medical Society by Dr. Bradford gives a historical sketch of the progress of American medicine, which is in the main gratifying. He goes over the medical history of the late war at some length and the general sanitary questions of the country are discussed. He regrets the small performances of America in bacteriologic study at the present time, as compared to some other countries, but on the whole his review is certainly encouraging.

110. **Starch Digestion.**—Austin publishes an experimental investigation of the non-retarding action of combined hydrochloric acid on starch digestion, and reaches the following conclusions: When a non-albuminous test-meal is given, free hydrochloric acid makes its appearance at the end of twenty minutes after eating, and at the end of half an hour the amount of free hydrochloric acid equals that of one or two hours after eating, where albuminous foods are taken, as shown by Experiment No. 9. Under normal conditions, the ptyalin of saliva digests most of the starchy constituents of food in the stomach within one or two hours, which takes place before free hydrochloric acid accumulates in the stomach to such an extent as to interfere temporarily with the diastatic action of saliva on starchy food. Those portions of starchy food which remain comparatively undissolved, and pass over to that part of the digestive canal where they are acted on by the pancreatic diastase constitute a very small portion of the starchy food taken. The administration of isolated diastase considerably enhances the digestion of starchy food in the stomach even under normal conditions, as shown by Experiments 7, 8, and 10. The elimination of the supply of ptyalin of saliva to the stomach will cause a marked retardation of starchy digestion in the stomach, as shown in Experiment 4. A maldigestion of starchy food, due to the deficiency of the diastatic power of saliva, can be regulated by the administration of isolated diastase, as shown in Experiment 12. The impression held by many that the diastase of saliva becomes non-active fifteen or twenty minutes after eating is totally erroneous.

112. **Chrysarobin.**—The summary of Fitz' paper is as follows: The claims of chrysarobin as a specific for warts may be summed up as follows: Success in a series of ten cases of warts on the sole of the foot in which the diagnosis was perfectly clear. Similar success in one case of warts on the hand. No failure in any case where the application was made repeatedly on the denuded surface of the wart. No subsequent recurrence of the warts.

113. **Treatment of Yellow Fever.**—Fitzpatrick reports on this article the results of experiments with serum prepared from the bacillus coli icteroides at the instance of Dr. Alva H. Doty, health officer of the Port of New York. He has succeeded with this serum in saving guinea-pigs infected with a fatal dose of the culture of the yellow fever germs. Ten cubic centimeters of this serum was sufficient to prevent infection and death in a guinea-pig 300 grams in weight, while a much larger one without this protection succumbed to the same inoculation. This investigation has been referred to in the newspapers during the last week or two.

114. **Exclusion of the Intestines.**—Kammerer reports a case in which to close fistulas after an operation for appendicitis, the small intestine was united to the middle of the transverse colon with a Murphy button, the severed portion being closed with sutures, thus cutting off from the fecal circulation more than six feet of the small and large intestines. A second operation cut off the transverse colon above the transplantation. The results were good. He reports from literature five cases by Baracz, Obalinski, Friele, Wiesinger, and Parkhill, and adds one of his own. In four of these no untoward symptoms followed complete occlusion. He describes these cases at length, and believes that unilateral exclusion may effect a cure for fecal fistula, and if successful, it is the best and simplest plan of treatment. He thinks that a diseased portion of the intestines should never be completely occluded, some escape for secretions must be allowed, and he regrets that all experimental work has taken this direction and that the secondary complete occlusion after primary exclusion should not have received some attention.

116. **Ill Effects of the Roentgen Rays.**—Orleman reports personal experience of Roentgen-ray dermatitis and ulceration which was cured by rest and skin grafting. She dwells on the therapeutic value of local rest and believes that had this been followed from the beginning, the recovery would have been more rapid. The following precautions are advised by Dr. F. H. Williams to prevent such accidents: 1. Never have the tube near the patient; it should be two or three feet away when using the fluorescent screen, and three feet or more away in taking photographs. 2. There should always be interposed a thin aluminum screen which should be ground by properly connecting it with the gas pipe. In treating these burns, it is of the first importance to realize that the local treatment is entirely secondary to a general treatment devoted to promoting the nutrition of the affected part.

122. See abstract on page 98.

123. See paragraph 109.

124. **Vermont Laboratory of Hygiene.**—Dr. Linsley, the Director of the Vermont State Laboratory gives here an account of the law organizing it and a description of its methods of work.

125. **Kidney Disease.**—Smith sums up his article on the diagnostic signs of kidney disease as follows: In conclusion it may be said that the nomenclature of kidney diseases needs to be relieved of the confusion which has so long attended it. Dropsy would seem to indicate a serious interference with the blood conditions. Uremia is complex in its nature and can be no more than an indication of functional or organic kidney disorder. Albuminous urine, as determined by the usual tests, means a faulty kidney. Tube-casts, except, possibly the hyaline, indicate serious kidney disturbances.

126. **Vaccination Sores.**—Bond, speaking of the obstinate sores which have sometimes followed vaccination, advises the use of nitrate of silver applications either in stick form or in an 80 per cent. solution, the latter being painless. Children do not resist it.

FOREIGN.

British Medical Journal, June 17.

Amputation of Lower Jaw. WILLIAM STOKES.—After remarking that nothing specially new in regard to the technic of the operation has been added of late years, Stokes reports a case of amputation of nearly one-half of the lower jaw for a multilocular cystic condition which was formerly called cystic sarcoma. The case he thinks of interest because it raises the question as to the origin and differences, clinical and pathologic, between unilocular and multilocular cystic maxillary growth, and also on account of the extension of the disease in this case to the temporomaxillary articulation. The operation was successful from a cosmetic point of view, as shown by the picture of the patient after the operation.

Treatment of Abdominal Palpitation.—WILLOUGHBY WADE.—The author remarks on the treatment of abdominal palpitation, a condition common in women and not infrequent in men. It is due to abnormally forcible pulsation of the abdominal aorta, which he considers must be due to excessive tension connected with contraction of the peripheral circulation; his treatment is the administration of nitroglycerin in doses of 1-200 of a grain given at bed time. He thinks that this drug will also be useful in cases of cold hands and feet which are not due to insufficient action of the heart, but to contraction of local arterioles.

Dissemination of Cancer of Breast. HAROLD J. STILES.—This paper is not capable of being abstracted in detail, covering, as it does, all the conditions, anatomic and pathologic, of mammary cancer. The author concludes, in agreement with Watson Cheyne, that the patient's chance of recovery lies in the first operation. If this fails, either from imperfect removal

of the disease or on account of its extent in the first instance, a later operation is seldom successful.

Probable Parental Form of Sharp-Tailed Filaria Found in Blood of Aborigines of British Guiana. C. W. DANIELS.—Daniels reports the discovery of what he considers a parental form of the sharp-tailed variety of filaria found in the natives of Guiana. He discovered it in the post-mortem examination of a native in whose blood both varieties had been found. He thinks that it will generally be difficult to discover if, as he suggests, its habitat is in the connective tissues. Several plates are given illustrating the type specimens.

Method of Operating for Umbilical Hernia, Whether for Radical Cure or When Strangulation has Occurred. HOWARD MARSH.—The author recommends certain modifications of the text-book technic of the treatment of strangulated umbilical hernia. The first is the isolation of the sac down to the opening through which it leaves the abdomen—that is to the level of the linea alba. The isolation of the sac is thus effected. A curved incision starting from the middle line above is carried over the right side of the swelling to the middle line below, and a similar incision is made on the left side, the two together forming an elliptic wound. These two incisions are so planned that they include the skin which covers all the front of the swelling, only enough being left to allow of the closure of the wound, without tension, in the middle line, when the hernia shall have been reduced and the sac removed. Next, the whole thickness of the subcutaneous fat is separated on either side from the outer surface of the sac, including its neck. This is easily carried out by a sweep of the finger and a few touches of the knife. Now, having the sac and its contents controlled, it is opened by an incision in the middle line long enough to afford free access to its interior. The omentum, any part of which when not near the neck may be cut away after ligation or clamping above and below, is unfolded and the intestines exposed, relieved of adhesions and returned. The operator then makes his way to the omentum where its neck emerges from the abdomen. This neck or stem he defines and isolates so that he can pass his finger completely around it. If it is adherent to the ring the adhesions must be separated. The stem is now tied in strands in the usual way, divided beyond the ligatures and returned into the abdomen. There will now remain the sac containing, perhaps, a large mass of more or less adherent omentum. The sac is cut away by dividing its neck at the level of the ring. Its edges are brought together with sutures, and the peritoneal cavity is thus closed. The ring itself is next obliterated by strong buried sutures and the external wound is closed. He claims that this method of first isolating the sac makes it easier to deal with its contents and the clamping and free division of such parts of the omentum as cover and obscure the intestines, saves time while dealing at once with the omentum where its sac emerges from the abdominal ring, instead of first separating, successively, the adhesions which connect it with the fundus of the sac, curtails the length of the operation one-half This, he believes, will still further reduce the mortality of this formidable condition.

Myxedema Treated With "Colloid Material." ROBERT J. M. BUCHANAN.—A case of myxedema is reported which was treated with "colloid" material prepared from the thyroid glands, with the result of completely restoring the patient to his former condition so that he is now obliged to explain to his customers that he is the same individual formerly known to them before the treatment. The case is illustrated.

Medical Press and Circular (London) June 14.

Two Cases of Metarsalgia. J. JACKSON CLARKE.—In this paper the author describes a couple of cases of this symptom, first described by Morton, for which he accepts the usual explanation of the misplacement of the heads of one or more of the metatarsal bones. In one of his cases he relieved the patient by having a special shoe made with a band of leather three-eighths of an inch in depth placed externally on the sole behind the heads of the metatarsals. The other case was relieved by operation.

Hey's Internal Derangement of Knee-Joint. JOHN KNOTT.—The author concludes his paper, begun in a former number, and maintains that the possibility of misplacement of the fibrocartilage of a normal knee-joint, which condition is apparently commonly understood as Hey's internal derangement, is a myth. He thinks the real explanation of the lesion is a slight subluxation of the head of the tibia with its adhering internal cartilages. It is caused by a slight rotation and internal flexion of the leg. An analogous misplacement of the outer condyle is the lesion causing the comparatively rare form which affects the external section of the knee-joint.

Australian Medical Gazette (Sydney, N. S. W.), May 20.

Two Cases of Syringomyelia. G. L. O'NEILL and SINCLAIR GILLES.—The authors report two cases of syringomyelia, one typical, the other having an involvement of the tactile sense, in which they think, however, that diagnosis was correct.

Genito-Urinary Pain. P. CLENNELL FENWICK.—The author reviews the anatomy of the nerves supplying the genito-urinary organs, and explains certain peculiar symptoms occasionally observed, among them asthma connected with urinary hyperacidity and relieved by proper treatment, tenesmus on urethral pain occurring in coition, and a rather curious symptom where pain is felt running from the umbilicus to the meatus on irritation of the former, which he finds is sometimes caused by neglect of cleanliness. In conclusion he asks whether so-called gonorrheal rheumatism may not be simply an advertisement of the urethral condition through the sympathetic system.

West London Medical Journal, July.

Cavendish Lecture on Etiology and Diagnosis of Cerebrospinal Fever.—WM. OSLER.—Dr. Osler alludes to the great mortality but comparative rarity of cerebrospinal meningitis, the periodic character of its outbreaks, its close resemblance to pneumonia in some respects and its difference in others, and then takes up the bacteriology of the disorder. Weichselbaum's discovery of the meningococcus after years of neglect has now become generally recognized as the casual germ, and Osler describes its peculiarities and his experience with it during the Baltimore outbreak. Excluding two mild cases in which no organisms were found, and one in which its presence was dubious and complicated with the streptococcus, he found it in thirteen cases out of sixteen in which lumbar puncture was performed. Councilman, Mallory and Wright have noted the association with other bacteria and this was especially notable in the autopsy cases of Osler. On the whole, however, his observations support those of Weichselbaum, Jaeger, Heubner, Councilman and others, that there is an organism, the diplococcus intracellularis, with special cultural peculiarities, that may reasonably be regarded as the exciting cause of the disease. The contrary view of Netter, that the pneumococcus is also the cause, and that the Weichselbaum coccus is a possible degenerate form of the pneumococcus is noticed and rejected as illogical and unwarranted. The diagnosis of cerebrospinal meningitis is not always easy and mortifying post-mortem disclosures are even more frequent than with pericarditis. Dr. Osler reviews certain features, such as the abrupt onset, the varying pyrexia, the skin rashes, the leucocytosis, not so high and persistent as in tuberculous meningitis, the more frequent arthritis or periarthritis, Kernig's sign, and lastly, though not by any means least, the use of lumbar puncture, than which no more valuable aid has been acquired within the past decade. Its possible therapeutic value is also mentioned with some facts rather indicating it than otherwise.

The frequency of sporadic cerebrospinal fever is still an open question and Dr. Osler gives the results of bacteriologic examinations by Dr. McCollum of 25 cases of meningitis, showing 6 of this form, 8 due to the pneumococcus, and 11 pyogenic and miscellaneous forms. Here he makes a digression on the meningitis due to the pneumococcus, its etiology, and almost universal fatality when a complication of pneumonia. The frequency of the primary type of this form is a matter for future study.

The lecture concludes with a brief section on treatment. Morphia was freely given for pain at Johns Hopkins and cool sponging was employed whenever the temperature exceeded 102.5 degrees. The mortality, 8 out of 18 cases in the hospital and 9 out of the total of 21, was not excessive, considering the severity of the cases. In two cases the spinal canal was opened, drained and irrigated, one of these being the first extensive laminectomy for acute spinal meningitis. While both cases died, as did also one by Dr. Musser, Osler considers this operation as a desperate remedy for a desperate disease, justifiable

in certain severe cases in which the spinal symptoms are very marked.

Bulletin de l'Academie de Medecine, May 20 and June 6.

Therapeutic Action of Cacodylic Acid and Cacodylate of Sodium. A. GAUTIER AND J. RENAULT.—All the advantages of arsenic treatment are obtained with these substances with absolutely none of its inconveniences. Each contains from 46 to 53 per cent. arsenic, and yet in such a combination that they are extremely soluble in water, non-toxic and non-irritating to tissues. Cacodylic acid probably combines with the cellular nuclei. Given by the mouth it does not produce diarrhea, melanodermia nor arsenic paralysis even with daily doses of 10 to 20 cg. "It is a medicine surprisingly effective and applicable in the most unexpected ways, as a stimulant of nutrition, of assimilation and regeneration of the tissues and of their fundamental albuminoid principles. But its chief value lies in its power to stimulate the reproduction of the lymph-corpuscles and especially of the polynuclear cells which rid the system of infection, bacteria and their products and also in its ability to cause a prodgiously rapid multiplication of the red corpuscles." It is therefore the method par excellence for sanitying and incessantly renewing the blood and the tissues in such affections as the pretuberculosis condition, localized tuberculosis, diabetes, Basedow's disease, leucemia, etc. Gauter has been testing it for three years, and a number of reports of its use for seven months by other physicians were communicated, all extremely favorable. Renault adminsters the cacodylate per rectum: 5 cc. of 25 to 40 cg. sodium cacodylate in 200 grams of water. He recommends all arsenic medication by the rectum. In a case of splenic leucemia the number of red corpuscles was restored from 600,000 to over three millions in twenty days, and to normal in less than three months, with the cacodylate.

Physiologic Introduction to Section of Sympathetic. F. FRANCK.—The functions of the sympathetic as established by extensive research on new lines by Franck, include a propelling action of the eyeball by the action of the cervical cord on the muscle of Muller, showing that section must suppress or diminish exophthalmia. It is also a vasoconstrictor and dilator of the vessels of the intraocular circulation; section diminishes the intraocular tension and may prove useful in glaucoma. The cervical sympathetic does not dilate the vessels in the thyroid; it contracts them, and section therefore can only add a paralytic vasodilation to the active congestion of exophthalmic goiter. The thyroid vasodilators are contained in the laryngeals. It was impossible to discover any secretion exciting action in the thyroid on the part of the cervical sympathetic, but a cerebral vasoconstrictor action was established, although the cerebral vasodilating action is still merely hypothetic. Section can only promote the cerebral sanguine current, and, as treatment of epilepsy, etc., is problematic to say the least. The most important result of this research is the announcement that the entire sympathetic apparatus is endowed with direct sensibility and transports to the cervicodorsal medulla centripetal nerves originating in the heart and aorta. Hence section of the sympathetic is effective by suppressing the transmission to the centers of abnormal excitations of cardio-aortic origin as well as in suppressing the centrifugal thyroid, encephalic and cardiac of abnormal excitations of cardiac irritations, the same as irritations of the sympathetic, are capable of inducing an ensemble of circulatory reactions which recall the accidents of Basedow's disease, including dilation of the thyroid vessels; consequently the effects of section of the sympathetic may be explained by its suppression of the routes of centripetal transmission in the reflex manifestations of aortic origin. This new idea of aortic sensibility transmitted by the thoracocervical sympathetic may suggest its resection for angina pectoris.

Presse Medicale (Paris), June 14.

Muscular Osteoma. REYNIER.—There are very few of these tumors on record, but radiography shows that they are more frequent than hitherto supposed. "They are probably caused by a fragment of periosteum being torn out at the insertion of the muscle, and favored by sanguine effusion, it proliferates in the form of a large tumor almost entirely in the body of the muscle.' In the early bone-embryonic stage it casts no shadow in a radiograph, but is distinctly visible when the bone is fully formed. If it causes no disturbance, massage should be tried first and may reduce the tumor, but if the function is interfered with, the bony mass should be removed down to the actual surface of the bone beneath, not leaving a scrap of osteoma tissue, and carefully following its outlines in the muscle, so as not to encroach on the nerves and vessels in the muscle. Several cases are on record of death from septicemia or absorption of iodoform after ablation, showing that the absorption is very great in these lesions, and asepsis imperatively required. But with extra care the patient is dismissed completely cured, in entire possession of a member whose function seemed fatally compromised forever. Two cases are radiographed, 15 and 21 years of age, in which the elbow was involved, both fully developed in about six weeks after the traumatism.

Revue de Chirurgie (Paris), June 10.

Nervous Complications of Fractures of Lower End of Humerus. A. BROCA AND A. MOUCHET.—These complications appear chiefly in the young and were never noticed with other traumatic lesions of the elbow. "If electric tests indicate a serious lesion of the nerve it is best to operate at once, but if these tests are favorable, expectant treatment is preferable, as manipulations, massage and galvanic alternating current may remove the cause. If there is no improvement in four or five months, the nerve trunk must be sought, liberated, mobilized and possibly stretched. It may have to be dug out of a fibrous or osteofibrous sheath. If paralysis appears during the formation of a vicious callus, indicated by radiography, intervention is likewise demanded, as also with secondary paralysis caused by a badly reduced fragment, in which case it is not necessary to expose the nerve. Sensibility returns at once after intervention, but motricity may not be re-established till after weeks of massage and electricity. In case of tardy paralysis intervention is indicated at once and the nerve must have a groove cut for it to move freely and not be stretched in most of the elbow movements.

Semaine Medicale, (Paris), June 14.

Defense of the Organism by Fibrin. A. GILBERT AND L. FOURNIER.—The writers call attention to the general and local hyperfibrinosis which accompanies certain infections, most marked in pneumonia, and its importance as a salutary reaction, the excess of fibrin thus produced serving to mechanically arrest, hold and neutralize microbes and their toxins and prevent their passage into the blood. Its favorable role is not limited to infections, but is conspicuous in the repair of wounds, regeneration of tissues, cure of certain aneurysms, etc.

Centralblatt f. Chirurgie (Leipsic), June 10 and 17.

Significance of Acute Intra-abdominal Effusion. C. BAYER.—"Sudden extensive effusion into the abdomen is a positive means of differentiating internal incarceration from peritonitis."

Siphon-Puncture in Abdominal Operations. C. LAUENSTEIN.—In spite of its advantages and simplicity, none of the text-books mention the siphon method of evacuating a cyst or similar cavity. A rubber tube connected with the needle or trocar is filled with water which is allowed to escape as soon as the needle is inserted in the cyst, and the contents of the cyst are thus aspirated by siphon action with no danger of their finding their way into the abdominal cavity or between the tissues.

An Absorbable Suture and Ligature Material. W. F. SNEGUIREFF.—The well-known Moscow professor asserts that he thinks he has nearly, if not quite, attained the ideal for an absorbable material for sunken sutures, in tendon fibers derived from the ligamentum nuchae of the reindeer, not twisted, but merely the straight, parallel fibers of the ligament. It is easily sterilized and is absorbed a little more slowly than catgut, which is a point in its favor. Other advantages are its relative cheapness, and the firmness and strength of the easily tied knots. He reports eighty-three laparotomies in which it was used, besides numbers of lesser operations, and the results induce him to recommend it as the long-sought, very nearly perfect suture material.

Formalin as a Remedy for Surgical Tuberculosis. J. HAHN.—The writer recommends formalin and glycerin as far superior to any substance yet used in tuberculous abscesses, and reports several cases cured to date with two or three injections of 1 to 5 per cent. formalized glycerin, the cure remarkably

prompt and permanent, and the spondylitis also cured with surprising rapidity in the plaster corset. It is especially effective in knee-joint and hip-joint abscesses. The injection is painful, sometimes requiring morphin, and there is frequently transient fever. It is repeated in two weeks. All necrotic matter must be removed.

Centralblatt f. Innere Medicin (Leipsic), No. 22.

Eosinophilia. J. PIOTROWSKI.—This review of all the communications published recently on this subject, including several Polish works, rejects every theory proposed to date, except Ehrlich's, which later research has only confirmed. According to this theory the eosinophilous cells are formed in the bone marrow from the mononuclear tissue; they are contractile and respond to chemitactic attraction by emigration, which explains the accumulations of them in effusion and secretions (sputa). The chemic substances that attract the eosinophilous cells probably originate in the destruction of the epithelium and epitheloid cells of the skin, stomach, intestines and bronchi.

Dermatologisches Centralblatt (Berlin), June.

Protracted Course of Latent Period in Syphilis. T. B. v. DORT.—Observations are cited in this communication to prove that syphilis in the father induces with a more protracted and benign course of the infection when acquired by the offspring, frequently leading to erroneous diagnosis, which would have been avoided if the parental syphilis had been known.

Deutsche Medicinische Wochenschrift (Berlin), June 15.

Disinfection With Tincture of Soap. J. MIKULICZ.—The famous Breslau surgeon has been devoting much attention of late to simplifying aseptic methods in order to bring them within the reach of the general practitioner and field surgeon. He now announces that five minutes' disinfection of the hands and region to be operated on, with tincture of soap, no water beforehand, is fully as effective as the usual sublimate-alcohol method and abundance of water, while it is much cheaper and does not exhaust the patient; less exposure is required and thus post-operative pneumonia is prevented. The disinfection is much deeper; the hands remain sterile longer afterward, and the saving of time is an inestimable advantage. Tincture of soap—Seifenspiritus—is non-toxic and does not irritate even the most sensitive regions. The only disadvantage is that the hands are left slightly smooth and slippery, but this is not noticed when tricot gloves are worn and is a point in its favor in obstetric practice. He is adopting it extensively in his practice and suggests that it may be found a superior disinfectant for inanimate objects. He first wipes the hands or part with a dry piece of gauze and then scrubs with the tincture and brush for five minutes. Formula in the Pharm. Germanica: olive-oil, 6 parts; potassa (Kalilauge), 7; alcohol, 30; water 17.

Muenchener Medicinische Wochenschrift, June 13.

Prognosis of Chronic Phthisis. M. PICKERT.—The writer warns against the prevalent optimistic tendency in respect to the curability of tuberculosis in sanatoria, fearing that many disappointments will result which will reflect discredit on the profession. He urges that a six weeks' stay at a sanatorium is far from sufficient, and that Dettweiler's "stayed cured" patients averaged 142 days, Turban's 225, and Leyden's and Fraentzel's, 335 days in the sanatorium. He asserts that laryngeal tuberculosis is cured much more frequently than is generally accepted, but that a favorable prognosis in pulmonary tuberculosis is only possible with shallow infiltration of the superior lobe, restricted to one side, and extending, at the utmost, to the third rib, while tuberculous infiltrative processes in the lower lobe impose an almost absolutely unfavorable prognosis. In other respects the prognosis depends on the extent, manifestation, fever, constitution and gastric and intestinal functions, none of which should be neglected in forming the prognosis. Observation and experience are necessary, and he advocates a tuberculosis sanatorium in connection with every medical college, and the careful collection of statistics at sanatoria on three points: 1. The condition of the lungs when the patient is dismissed. 2. Comparative statistics of the condition when received and when dismissed, lungs and general health. 3. Statistics of the working capacity when dismissed.

Wiener Klinische Wochenschrift, June 15.

Gynecologic Trifles. J. EISENBERG.—Among several suggestions to facilitate practice without an assistant, one describes a speculum, a hollow cylinder with a flat peg on top of the outer orifice, and a sloping trough fitted to the lower half, to carry off fluids without soiling or wetting the patient or bedding. Another "trifle" is rolling the strips of gauze for tampons on small round wooden sticks which project a few inches beyond each end of the roll. A wire handle, like a figure of eight cut at the bottom, fits over the two projecting ends of the roller. This handle is held by the patient or hung on some projection, and the gauze unwound directly as needed for the tampon, without coming into contact with anything but the operator's fingers.

Brazil Medico (Rio), May 22.

Symbiosis of Bacillus Icteroides and a Fungus. J. B. DE LACERDA.—The fact casually mentioned by Sanarelli, that the bacillus icteroides frequently degenerated in the ordinary culture-media, while it seemed to thrive particularly well when a certain fungus was growing on the medium with it, has been studied by Lacerda who confirms this fact, and suggests that it may explain a number of the contradictory phenomena in the life of the bacillus. The fungus seems to be a certain aspergillus, which is killed by cold weather, and the bacillus possibly only becomes pathogenic when combined with this fungus, which would explain why yellow fever disappears with the advent of cold weather, although the bacillus does not lose its virulence submitted to the very low temperatures, as Sanarelli established. It also explains why the cultures sent to Europe to be tested proved inert and non-virulent, as they had none of the fungus with them. In tubes containing some of the fungus, the bacillus icteroides gave every evidence of vitality and virulence in cultures a year old. The fact also explains why old, mouldy houses and vessels are the peculiar haunts of yellow fever.

Societies.

Fourth International Congress of Psychology. All arrangements have been completed for this Congress, which is to meet at Paris, August 20 to 25, 1900, with Ribot as president. Address of the general secretary, P. Janet, 21 rue Barbet de Jouy, Paris. There are to be seven sections.

New Jersey State Medical Society.—At the recent meeting of this Society, held in Allenhurst, the following officers were elected: president, L. M. Halsy, Williamstown; first vice-president, William Pierson, Orange; second vice-president, John D. McGill, Jersey City; third vice-president, E. L. B. Godfrey, Camden; corresponding secretary, E. W. Hedges, Plainfield; recording secretary, William J. Chandler, South Orange; treasurer, Archibald Mercer, Newark. The next annual meeting will be held in Atlantic City, beginning June 4, 1900.

Medico-Legal Society.—At the meeting of this Society, held in New York City, June 21, in the discussion on "Christian Science" and the law, the principal argument was in favor of making "Christian Scientists" amenable to the law, ex-coroner Moritz Allinger holding that the practice was iniquitous and the law should therefore be invoked to suppress it, just as in the case of other charlatanry. He urged that any alleged cure which depends on the superstition of the people it seeks to aid should be condemned and the most severe penalties enforced against those who practice it. Howard Ellis also argued that those practicing "Christian Science" should be made amenable to the laws regulating practice in general. An opportunity was given for "Christian Scientists" to reply, and the extraordinary ground was taken that because they did not make use of drugs they were not in any way amenable to the laws in force in regard to medical practice.

St. Louis Medical Society.—At the meeting June 24, Dr. Thomas F. Rumbold read a paper before this Society, on "Fifty Years as a Specialist in Diseases of the Nose and Throat." The paper was reminiscent and historic and Dr. Rumbold being really the first physician in America to devote himself exclusively to this work, spoke with authority. He related many interesting cases, among others his first case of nasal catarrh, his experience in mananging the case, and his correspondence with many of the most eminent physicians and surgeons in America, securing their views of such cases. The

opinions of Drs. L. P. Yandell of Louisville, Daniel Drake of Cincinnati, Brainerd of Chicago, Willard Parker and Valentine Mott of New York, and many other front-rank men, were crude and amusing in the light of our up-to-date knowledge of the pathology of nasal catarrh. Many, indeed all, of these great men, declared chronic, purulent, nasal catarrh incurable

The meeting July 1 was devoted to the trial of Dr. W. H. Mayfield, for unprofessional conduct, the charges being preferred by the Missouri State Medical Society at its last session at Sedalia. Dr. Mayfield was found guilty by a vote of 50 to 1, and expelled by vote of 46 members, the rest declining to vote. The charges against Dr. Mayfield were improper methods of advertising his sanitarium, the employing of runners or commercial representatives and the offering of commissions to physicians for sending cases to him.

Minnesota State Medical Society.

Thirty-first Annual Meeting held at Minneapolis, June 21, 1899.

DR. F. A. S. DANSMOOR, the president, in his address deplored the exclusion of medical men from public offices and the fact that recommendations of health boards were so often disregarded. He would recommend more union of effort and to this end the organization of more local societies and greater attendance and attention to business in the societies now in existence. Editors will write long articles on the "Prevention of Deaths by Tornadoes," and entirely ignore the almost infinitely greater number of deaths by tuberculosis and smallpox. The state will spend millions freely on practically unimportant things and refuse a few thousand dollars that are required to furnish pure water and prevent the enormous death-rate by typhoid fever and other preventable diseases.

OBSERVATIONS ON MEDICAL SERVICE OF THE LATE WAR WITH SPAIN FROM THE STANDPOINT OF A VOLUNTEER SURGEON.

DR. CLARK of Stillwater, whose post was at Chickamauga, after describing the arrangement of the camps and the difficulty of obtaining proper arrangements and supplies, said that in the typhoid cases, which were generally of low type, antiseptics, stimulants, and sustaining food were largely used with success. Temperature was not generally high except in severe cases. Orders were issued to boil all drinking water, but this was generally disregarded and in case of one regiment where it was strictly observed the percentage of sickness was the highest of any of the camps. He believed, however, that this was brought about by infection from dust and flies and not influenced materially by the boiled water. He said that the hemorrhage and diarrhea in that climate were something terrific and unknown in such climates as northern Minnesota.

ACROMEGALY.

DR. GREENE of St. Paul presented a case, in a male, 22 years old, history negative, never sick. He denies syphilis; noticed his hands and feet enlarging two years ago. The larynx is enlarged and thickened and causes so much obstruction that he has spells of difficult breathing. There is remarkable thickening of the skin and the forehead, with changes in the shape of the face approaching moon shape, fingers blunt, skin normal and strength in hands also normal; thyroid gland has enlarged notably; has improved remarkably under thyroid treatment. This has been purposely discontinued for the last ten days with marked results for the worse. Dr. Greene believes this treatment to be effectual, but insists on a good extract being used as he has had very variable results with different manufacturers' products.

INSOMNIA.

DR. J. V. SHOEMAKER of Philadelphia gave an address on this subject. He said that sleeplessness of the kind of which he should speak occurred generally in people who, in their anxiety to get ahead were neglecting their diet and the natural functions connected therewith and in short, people who were burning the candle at both ends. It does not do to drug such people as this to any extent, and he has made it a rule to give drugs to this class of cases with much caution. The physiologic remedies are of most importance and he laid great stress on physical exercises, which if necessary may be begun while the patient is in bed—massage, electricity, of which galvanic is best with the negative pole to the back of the neck, and in children the best results had been obtained by the use of the roller electrode on various parts of the body in soothing into quiet the active and excited muscles. Good and nutritious food, entertainment, and change of scene are also often of great benefit. The beauty of all these remedies lies in the fact that they remove the cause and give the patient a natural and quiet condition.

Among drugs he mentioned opium with its products as being one of the best, most abused and probably one of the most dangerous remedies in unskilled hands. Chloral produces natural sleep but is dangerous on account of its weakening effect on the heart and is particularly so in alcoholic subjects. When necessary to use it, the best effects with least danger may be obtained by giving it by enema. Paraldehyde acts well on the whole system and produces natural soothing sleep without danger, and may be administered in doses of from 10 to 120 grains without danger. Bromides are valuable but should be used less freely, while belladonna and hyoscyamus give the best results in mental depression. He considers cannabis indica, when properly handled, one of the best and safest of all remedies, often succeeding where other things fail entirely. Sulphonal and trional should be used with caution, especially by persons with renal insuciency. He deprecated the use of mere symptomatic remedies in any case and also those in which the price is held up by proprietary means. He is in favor of using older remedies and not trying every new thing that comes up. In all cases make haste slowly.

Election of officers resulted as announced in the JOURNAL of July 1, p. 37.

Philadelphia Pediatric Society.

Meeting Held June 13, 1899.

PNEUMONIA.

DRS. J. C. GITTINGS and C. F. JUDSON presented a clinical report on certain cases of pneumonia treated at the Children's Hospital. Dr. Judson described the physical signs and symptoms present in several cases of alveolar catarrh, which could be differentiated from bronchial pneumonia. One writer states that in cases of alveolar catarrh there is first a proliferation of the cells lining the alveoli, which with the exudate finally undergoes degeneration, with collapse of the walls of these air-cells. In some instances a cheesy product may be formed, or fibrosis may occur. In the cases presented there had been moist rales, increased fremitus, and areas of consolidation. In all cases there had been great depression lasting over a considerable length of time, but followed by recovery. In connection with the study of alveolar catarrh it might be well to state that this condition was not necessarily dependent on the presence of the tubercle bacillus. In the cases reported the diplococcus had been found in the sputum most frequently, but no one organism was always present.

DR. GRAHAM had not always been able to make a differential diagnosis between bronchial pneumonia and alveolar catarrh, and wished to know the special points which had been depended on by those who had presented the paper in doubtful cases.

DR. J. C. GITTINGS stated that the most important data regarding this question was: 1. The way in which the cases originated. 2. The clinical course. In these cases at no time had there been bronchitis. 3. The area involved, in some instances the apex alone being affected. 4. The slow course pursued. 5. The gradual abatement of the disease, leaving behind no morbid change which could be detected by physical methods of diagnosis.

CASE OF RUMINATION.

DR. L. C. PETER reported and presented a case of rumination occurring in a male 7 years of age. In this case the speaker had endeavored to find out if possible why such a condition should be present in this patient. He had been told that it was partly because the patient liked to do so, and partly because he could not help it. It would appear, however, that the general system had suffered, as there had been considerable emaciation or exhaustion. The character of the material eructated had varied according to the time elapsing from its introduction of the food. Rumination had occurred without reference to the particular variety of food taken. The stomach had been frequently examined but no pouch nor any malformation had been found. The speaker referred to instances in which

this condition had been present in neurotic individuals as well as in idiocy. A certain amount of neurosis doubtless existed in this case, for at the suggestion "expectorate your food," instantly it was obeyed. This act was done probably two hours after taking food—9 p.m. In regard to the treatment, trephining had been spoken of by one writer, but doubtless this was not necessary. At least there could be no valid reason for doing it. This case had been broken of the habit under the influence of suggestion, and in addition by the administration of Blaud's pills.

PSEUDOMUSCULAR HYPERTROPHY.

DR. PETER also presented a boy of 7 years presenting all the typical symptoms. The boy was of neurotic parents. The father had suffered from epilepsy, and at one period lay in a trance lasting three days. The boy was mentally dull and when 3 years of age it was observed that the calves of the legs were markedly developed, as well as the muscular system generally, except in certain areas in which atrophy is present, notably in the latissimus dorsi, pectoralis major and deltoids. The bodily movement is sluggish, waddling gait. When an effort is made to assume the erect posture he first places his hands low down on the legs and virtually climbs upon himself. The reflexes are greatly diminished.

Cincinnati Academy of Medicine.

Meeting Held June 12, 1899.

CEREBROSPINAL MENINGITIS.

DR. G. A. FACKLER read the histories of three cases occurring on his own service and that of Dr. E. W. Mitchell at the Cincinnati Hospital, during the past few months. The cases all presented characteristic symptoms: sudden onset, usually with chill, rigor and high fever; headache with rapid delirium, usually of a low, muttering type but occasionally maniacal; stiffness and rigidity of the neck muscles; opisthotonos, more or less pronounced; irregular fever, Kernig's sign, carinated abdomen, tache cerebrale, absence of abdominal pain, tenderness, rose spots, and splenic enlargement; great hyperesthesia, particularly over the calves of the legs and the soles of the feet; absence of the Widal reaction after trials; a leucocytosis of from fifteen to twenty thousand; withdrawal of more than normal amount of fluid by the lumbar puncture, with temporary amelioration of the symptoms. All the cases died. Examination of this fluid by Dr. J. E. Creiwe showed in all these cases a tetracoccus which did not grow on agar or blood-agar, but which flourished well on fluid bouillon. In another case of Dr. Greiwe's, a child with meningitis, acute hydrocephalus developed, and here too a tetracoccus was developed after lumbar puncture. One of the Cincinnati Hospital cases lived forty-four days.

Post-mortem examination of these cases showed well-marked macroscopic evidence of inflammation of the cerebral and spinal meninges, and in one case an area of softening involving one entire cerebellar hemisphere. A report of the microscopic changes will be made after the tissues have become sufficiently hardened. Stained specimens of the tetracoccus were exhibited under the microscope. Microphotographs were shown.

SKIN GRAFTING ACCORDING TO THIERSCH.

DR. E. P. ADAMS, after giving a graphic description of this operation, narrated a case of his own in which sking grafting had been done by this method over a large area in the region of the groin, with perfect results except over the inferior inguinal glands.

DR. J. C. OLIVER spoke of using the inner lining of an egg-shell as a substitute for grafts of skin. As far as his personal experience went, this method had never succeeded in the slightest degree. He also narrated the history of a case of severe burn of the hand in which the fingers had been flexed by the resulting cicatrix on the palm of the hand. On dissecting out the cicatrix and skin grafting he had obtained so good a result that his patient was able to make her living wrapping packages of chewing gum. He has had grafts cling to the inner surface of bone, the tibia, which had been trephined and curetted for osteomyelitis, and has had grafts take over malignant tissue. In some crushes of the foot he is in the habit of not amputating but allowing the crushed tissue to be thrown off by natural means, and then to skin graft the stump, and is confident he had saved portions of many feet by this means.

DR. ALFRED FREIBERG advocated the method of Krause in preference to the Thiersch. In the former method the subcutaneous tissue is engrafted with the overlying skin and the whole held in place by sutures. He called attention to the excellent result obtained by a member of the Academy in a case of lupus of the face treated by this method, and exhibited before the society but a few weeks ago. He knew this could be done when only comparatively small areas were to be covered. He also thought that transference of a pedicle should be done more frequently. His reasons for these preferences were that he thought the new skin of the skin graft more liable to break down under slight mechanical insult.

Meeting held June 19, 1899.

DOUBLE TERTIAN AND ESTIVO-AUTUMNAL MALARIA.

DR. MARK A. BROWN reported a case, the patient having been sick for about six weeks with chills occurring with more or less periodicity. The examination of the blood five hours after chill showed the presence of two sets of tertian organisms, one with just beginning pigmentation, the other almost filling the red corpuscles with it had entered. Crescents were also present, but in vastly less numbers, proving the existence of the estivo-autumnal variety. As it is usual in this condition for one type to dominate the other, so in this patient the tertain fever had the upper hand, the temperature-chart showing a daily intermittent fever hardly influenced by the continued development of the estivo-autumnal parasite. Microscopic slides stained by the eosin and menthyl blue method were exhibited showing crescents and the two tertian types. The case was reported on account of its comparative rarity, the Johns Hopkins reports mentioning but thirty-one instances in a total of over 1600 cases. Dr. Brown had been able to demonstrate the condition but twice previously in several hundred cases.

WOUNDS MADE BY MODERN BULLETS.

DR. P. S. CONNOR gave an interesting lecture on this subject. He compared the wounds of the Civil War with those of the Spanish-American and gave as the result of his conclusions that the great increase in the velocity of the latter ball was in a measure beneficiary, and that the track of the bullet was clean cut: that there was very little smashing of tissue around the track of the bullet and as a result gangrene and secondary hemorrhage were uncommon. On the other hand, the blood-vessels and nerves were not pushed to one side as they undoubtedly were by the former missiles. As a rule the late bullets perforated, though some cases of lodgment were reported. This was contrary to previous expectations as was the demonstrated fact that the bullet might also be deflected. Another point was that the bullet was liable to go "end on" and not "side on" so that large wounds were not so common. As regards chest wounds unless some essentially vital point, as a large vessel or the heart, was penetrated, the prognosis of late was very good, just as in civil practice. In abdominal wounds he said that it was rather remarkable that the two laparotomies made for gunshot wounds both resulted fatally, while the cases not operated on recovered. Of the twenty gunshot wounds involving the knee-joint, none have resulted fatally and none had to submit to amputation. Less than 5 per cent. of the wounded removed to hospitals died, a remarkable record when compared with the terrible mortalities from this cause in former wars. He thought that the antiseptic packets carried by the soldiers, when used, had not a little to do in influencing this mortality. Discussed by Drs. Dan Young, Ayres, Oliver, H. M. Brown, Boylan and Freiberg.

Orleans Parish Medical Society.

Meeting held in New Orleans, La., June 24, 1899.

TRANSPOSITION OF VISCERA.

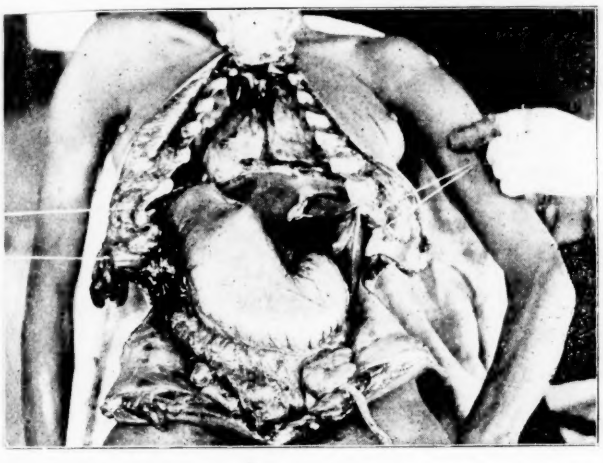
DRS. L. G. LEBEUF and JULES LAZARD reported cases of transposition of the viscera.

The case of Dr. LeBeuf was W. P., white, male, 31 years old, a native of Louisiana, 4 feet 10 inches in height, weighing 75 pounds. He had been admitted from the out-patient de-

partment to a medical ward of the Charity Hospital, where he was treated for pulmonary tuberculosis, evidenced both by physical signs and by the presence of bacilli in the sputum.

Physical examination showed the apex-beat of the heart three-fourths of an inch below the level of the right nipple, one-half an inch to its left; on percussion the position of the heart was found to be the reverse of the normal, the long axis running from the base above downward and to the right. There was dullness on the left side from the sixth interspace downward over the transposed liver; spleen dullness was elicited on percussion over the tenth rib on the right. On the right side, below the heart, the position of the stomach could be made out by the tympanitic percussion note, auscultation over the site, while the patient was drinking, detected a gurgling sound as the liquid entered that viscus. Apparently all the viscera were transposed, though the positions of the cecum and sigmoid were not determined.

In the case of Dr. Lazard the diagnosis was first made on autopsy. S. Y., colored, female, 24 years of age, was admitted to the Charity Hospital, Nov. 16, 1894; her breathing was rapid, her pulse full and bounding; there was febrile temperature. Percussion having revealed an apparent dullness at the base of the left lung, a diagnosis of pneumonia was



made. On the following day she died, coma having supervened in the meantime. The autopsy, admirably illustrated by the photograph taken at the time, showed the heart on the right; there was pericarditis, with aortic degeneration; the lungs were transposed, the left having three lobes, the right two; there was nothing else abnormal here beyond a slight pleuritis. The spleen was on the right, and was congested; the liver enlarged, lay on the left. The stomach and pancreas were also transposed, while the sigmoid flexure on the one hand and the cecum and appendix on the other had changed places. The kidneys were congested, the left presenting pus. The cause of death was thought to be pyonephrosis with congestion of the kidneys.

Dr. Lazard quoted Cloquet as saying that he had found this condition three times in 10,000 autopsies; Littre and Robin as stating that it is seen only in men.

Dr. Van Seydewitz said that in Vienna he had seen a man who presented transposition of the viscera; further, he was acquainted with a man in New Orleans who is similarly peculiar in his anatomy.

AMPUTATION BY BANDS.

Dr. LeBeuf had that day attended in labor a white woman who had gone seven weeks beyond the expected time of her delivery, this having been calculated with considerable accuracy from the date of her husband's departure. He wished to call attention not so much to this point as to the deformity of the infant's left foot. It looked as though the big toe had been cut off transversly, and the second and third smaller toes—corresponding to the third and fourth metatarsals—obliquely. It looked to him like a case not of arrested development but of amputation by bands. In answer to questions, Dr. LeBuef stated that there was no distinct cicatrix, though the ends of the second and third toes looked rough; no bands had been found in the interior of the amniotic sac; there had been quite a good deal of amniotic fluid.

DEFORMITY AT BIRTH.

Dr. C. J. Miller had been present at the birth of a child which presented deformity of both upper extremities. The right hand, minus a thumb, was attached directly to the arm, the forearm being lacking; the left hand, which also had but the four fingers, was attached to a half-length forearm. These members were fairly well developed.

ALCOHOLIC POLYNEURITIS.

Dr. T. S. Dabney reported a case of alcoholic polyneuritis. A young man who was a steady tippler was taken with vomiting, with jaundice; he became weak in his legs and in the course of a few days had extensor paralysis of both wrists and ankles. Cases of this kind require rest, strychin and good food—not stimulation with the faradic current. The patient, whose onset was described, received, besides the above, 1 grain of ipecac every three hours, for its effect on the liver. In thirty days Dr. Dabney expected him to be completely well. From the suddenness of the onset and the usual rapidity of improvement it was reasoned that there could not be any actual nerve degeneration; the condition was rather one of toxemia, such as exists in extensor paralysis complicating plumbism.

St. Louis Medical Society.

Meeting held June 17, 1899.

CEREBRAL LOCALIZATION.

Dr. Arthur E. Mink read a paper on this subject and stated that the researches of Flechsig have compelled us to remodel our ideas concerning the cerebral cortex. The centers of the cerebral cortex can be divided into two great groups. We have first the projection centers, which are the equivalents of sensory surfaces and are situated about the primary fissures. The tactile center is largely homologous with what was formerly termed the motor area, and is located in the paracentral lobule, part of the gyrus fornicatus, the ascending frontal and parietal convolutions and the posterior parts of the three frontal convolutions. It was formerly supposed that all parts of the cortex alike received projection fibers. This, however, is not so. Only one-third of the cortex receives projection fibers. Each projection center has centripetal and centrifugal fibers. The visual projection center is situated in and near the calcarine fissure. The auditory area is in the first temporosphenoidal convolution, the olfactory in the olfactory trigone, the anterior perforated substance, the neighboring part of the corpus callosum, part of the hippocampal gyrus and the uncinate gyrus. The olfactory sense is rudimentary in man. In some of the mammals, however, the olfactory area occupies almost two-thirds of the cerebral cortex. In man the tactile so-called motor area is largest of all, inasmuch as it duplicates for the opposite half of the body all tactile, thermal, muscular, articular, and visceral sensations. In it are represented also all sensations coming from the mouth, tongue, soft palate, pharynx, larynx, rectal and genito-urinary surfaces. In this area we find giant pyramidal cells which are the origins of the motor tract. The auditory projective area, besides receiving fibers from the organ of Corti, also sends centripetal fibers to muscles controlling movements of the ear. The association centers are the higher intellectual centers. In them are stored up the various tactile, auditory, visual, olfactory, and motor memories. In them are combined, serialized and fused, all of these various memories. They are the organs of what is termed memory, will, judgment, reason, experience, moral and esthetic sentiment. The projection area thus, in one respect, merely centers for reflexes of cortical origin.

The association centers exercise an inhibitory influence over the projection centers. When in man, through pathologic conditions, the association centers lose their control, the projection centers manifest only blind impulses and animal passions. The association centers are absent in the Rodentia, feebly developed in the Carnivora, co-equal with the projective centers in the higher apes, and occupy in man two-thirds of the entire extent of the cortex. The anterior projection area comprises the greater part of the first and second frontal convolutions and the straight convolution on the inferior surface. The middle center comprises the island of Reil. The greater posterior association center comprises the parietal convolutions, the fusiform and lingual gyri, the inferior temporal gyrus and the anterior part of the external occipital lobe.

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SATURDAY, JULY 8, 1899.

CHANGES IN CELLS LINING PERITONEUM, IN INFLAMMATION.

The nature and origin of the cells lining the pleuroperitoneal cavity have attracted much attention; the opinions on these points are as yet far from uniform. In order to solve this question it seemed only natural that the investigators should turn to embryology, in order to determine from which layer of the embryo the pleuroperitoneal cells are developed, but great difficulties were soon met with.

In the first place, it is very hard to determine the exact moment when the law of specificity of cells goes into force; hence the different opinions among embryologists. The majority of them were of the opinion that the pleuroperitoneal cavity constitutes a large lymph space, and that the lining cells were equivalent to the endothelial cells of vessels. Waldeyer, on the other hand, assumes that histogenetic differentiation is completed with the formation of the archiblast and the parablast. All muscles, nerves, and epithelia are derived from the archiblast; all the connective tissues and the blood from the parablast, and at the present time this view, or some modification thereof, is generally accepted. The cells covering these serous membranes have, therefore, come to be regarded quite generally as true epithelial cells.

The numerous experiments which have been made in order to determine the role played by these cells in inflammation of the peritoneum, and in the formation of peritoneal adhesions, have not led to uniform results. It is true that many points in connection with the formation of peritoneal adhesions have been cleared up, but comparatively little has been learned from these experiments concerning the relations and the nature of the lining cells themselves. Generally, the question as to the role which these cells play in the formation of adhesions was lost sight of.

Kolossow investigated this question, and found that the presence of prickles upon the pleuroperitoneal epithelium or endothelium would speak against their being connective tissue cells, and he regarded them as genuine epithelium.

Ranvier, on the other hand, found that when microbes are injected into the peritoneal cavity, these cells appear to swell up, send out branches, and to act in general as young connective tissue cells. Cornil came to the same conclusions. Marchand injected a suspension of lycopodium spores into the peritoneal cavity of guinea-pigs, and examined the surface of the omentum at longer or shorter intervals. He believes that the epithelial cells under those conditions present ameboid movements and surround, together with leucocytes, foreign bodies, forming giant cells, and eventually a fine fibrillated tissue.

V. Bungner differentiates structurally between granulation cells of connective tissue and of endothelial origin, but what role the endothelial cells play in the healing of wounds, and in inflammatory processes in the peritoneal cavity, he was not able to definitely specify.

The latest research in regard to this question comes from Ziegler's laboratory in Freiburg. Buttner[1] found that in inflammations produced by the staphylococcus aureus the omentum becomes covered by a layer of fibrin, in which are a variable number of leucocytes, which also infiltrate the substance of the membrane. In the early stages of the inflammation, the covering epithelium appears very distinctly, and can be readily recognized and differentiated from other cells. He was able to find the prickles which Kolossow described. A little later in the process the epithelial cells are to a large extent desquamated, but in the cells which remain attached karyokinetic figures appear in large numbers. The desquamated epithelial cells lie in the fibrin.

The principal outcome of this series of experiments is that in no case could Buttner trace the transformation of the epithelial cells into connective tissue cells. The same results were obtained in another series of experiments, in which the omentum was carefully sutured to the abdominal wall.

The covering of the layers of the tunica vaginalis is genetically identical with the pleuroperitoneal epithelium. Buttner also experimented on this membrane, which seemed rather favorable for this kind of work, by passing a silk suture through the testicle and the skin, and then tying so that the inner layer of the tunica vaginalis was pressed against the outer quite firmly. The specimens were then removed after varying intervals, and examined after suitable preparation. The histologic examination showed that usually the epithelium undergoes disintegration, and that the epithelial cells never change into fibroblasts.

[1] Ziegler's Beiträge, 1899.

Without going into any extensive histologic details it may suffice to say that the principal result of Buttner's investigation is that the epithelium plays a negative role in the adhesion of serous membranes. The adhesions are first formed by means of a fibrinous conglutination. A direct union between the two surfaces by means of epithelial cells was not observed. There are facts which speak in favor of the true epithelial nature of these cells.

DETERMINATION OF SOUND DIRECTION.

Among the many functions that have been attributed to the semicircular canals, that of the determination whence sounds proceed, has received the support of some physiologists. Though the majority have strenuously denied this as one of their functions, some late experiments would seem to point to these canals as not wholly unconcerned in the perception of acoustic space. Their peculiar arrangement, occupying as they do three dimensions of space, is most seductive in the formation of theories bearing on our conception of space relationships. The objection was long ago pointed out that in the quadrumana, which led a more or less topsy-turvy sort of a life, the respective relationship of these canals to the three dimensions of space must be constantly changing, and hence, in these creatures at least, they can have but little effect in the determination of space direction. Many fishes have only one or two semicircular canals. The lowest vertebrates have an ear not markedly different from the invertebrate type, as may be observed in the lamprey, which has a saccule with auditory hairs and otoliths in communication with two semicircular canals. The hag—myxine—has only one canal. The comparative studies of Dercum[1] led him to give up all notion that these organs had anything to do with the maintenance of equilibrium or the determination of space direction. In spite of these various objections, the three prominent theories offered as explanation of the physiology of the perception of space direction point more or less to these canals.

The first theory is the crude one already mentioned and depending on the arrangement of the canals among themselves. As sounds all reach these canals through one and the same opening, it is difficult to imagine how their respective correspondence with the three dimensions of space can have any effect in the determination whence sounds proceed. This, in addition to the objections already enumerated, renders this crude though popular theory quite untenable.

Another theory in regard to the perception of space direction of sounds assumes an acoustic space analogous to the tactual and visual space, and rests on the belief that special tactual sensibilities reside in the tympanic membrane. This theory is incomplete, however, in regard to an explanation as to how a mere surface such as the tympanic membrane can determine such complex relationships as are involved in the fundamental three dimensions of space. The association of the function of the tympanic surface with that of the canals would be rather more suggestive.

The third or motor theory assumes that certain motor impulses are awakened in particular definite relationships by the activity of the organ of hearing. The conception of the motor space is a derivative of past experience in connection with and under the influence of visual space and tactile experience. The existence of space-forms acquired through other sensations is presupposed in the conception of acoustic space. In connection with this theory it may be well to remember that, as Laborde[2] pointed out, the auditory nerve contains both motor and sensory fibers, the former being distributed to the semicircular canals.

In some recent experiments made by Matatoro Matsumato[3], in Professor Scripture's laboratory at Yale, many interesting phenomena were elicited. The subject was seated, blindfolded, with head in a head-rest, surrounded by a kind of spherical cage so built that its axes furnished twenty-six terminal points. A short, sharp sound was made with a sort of telephonic apparatus at each of these terminal points, and fifty experiments were performed for each point. First of all it was most emphatically demonstrated that the perception of the direction whence sound comes is not a mere matter of chance. If it had been a matter of chance, probably not 40 times in 1,000 would the judgments have been correct; as a fact, however, the judgments were correct 768 times in 1000. Of the twenty-six directions, not one was actually confused with more than eight directions. Out of some 656 possible errors, only 113 were actually noted. Sounds on the right side were never mistakenly assigned to the left side; nor were those on either side ever assigned to the median space. These observations emphasize the necessity of two ears for the correct appreciation of sound paths. The sounds of the right hemisphere were more accurately perceived than those of the left; those of the front more than those of the rear; and those from below more than those from above. These variations are probably due to the shape and direction of the pinna and to the difference in the sensitiveness of the two ears.

The four characteristics of sound waves are intensity, pitch, phase and timbre. Experimenting especially on the intensity of sound waves, Matsumato, who inclines to the motor theory in explanation of the appreciation of sound paths, without, however, referring to the semicircular canals, concludes generally that the relative difference between the intensities of the component sounds heard by the two ears is the immediate cause of the perception of the direction of the sound. The distance of the sound depends, on the contrary, on the absolute intensity of the sound.

[1] Jour. of Nervous and Mental Diseases, January, 1891, p. 61.

[2] Trib. Med., Sept. 12, 1880.

[3] Researches on Acoustic Space, Studies from Yale Lab., vol. v, 1897.

A MUTUAL help society, consisting exclusively of physicians and surgeons, is being organized in Belgium to insure its members against professional accidents.

SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS.

We no longer approach a case of tuberculosis with the fear and trepidation that have been the rule in the past, knowing that in many cases improvement or even recovery takes place as a result of intelligent management. No case should be looked on as hopeless, although treatment must sometimes be merely palliative. Surgery has thus had restricted application in the treatment of pulmonary tuberculosis and radical results are not to be expected. Of the utility of properly employed measures of this kind an instance is furnished by Turban[1], who reports a case in which extensive rib resection was followed by collapse of a tuberculous cavity in the lung, with inhibition in the activity of the morbid process. The patient was a man 21 years old, with hereditary predisposition, who had presented symptoms of pulmonary disease for two years, with fever and hemoptysis. The left lung was almost entirely destroyed, and the left side of the chest was flattened and almost immobile in respiration. The percussion-note on the left was tympanitic, the respiratory sound bronchial and in places amphoric, with tinkling and metallic rales. On the right side, at the apex, inspiration was enfeebled, and expiration prolonged. Cough was marked, with abundant purulent expectoration and tubercle bacilli in the sputum. The pulse was accelerated, the temperature elevated, cyanosis marked. In the course of two months signs of contraction of the left lung appeared, the heart being displaced toward the anterior axillary line, and pulsation becoming visible between the second and fifth intercostal spaces to the left of the sternum. Fever persisting, and signs of increased tissue destruction appearing, it was decided to remove a wedge-shaped portion of the chest wall, to permit further contraction of the lung. Accordingly, a cutaneous incision 14 cm. long was made, beginning in the third intercostal space, and passing downward and outward, and 3 cm. of the fourth, 4.5 cm. of the fifth, 7.5 cm. of the sixth, and 9 cm. of the seventh rib was removed, without opening the pleural cavity. The wound was closed by suture, and healed without complication. At first, cough and expectoration were increased and the febrile symptoms augmented, but subsequently all receded, and the chest underwent further contraction. Unpleasant symptoms recurring after a time, however, a second operation was undertaken, and 9.5 cm. of the sixth rib, 10.5 cm. of the seventh, 10.5 cm. of the eighth, and 11 cm. of the ninth rib was resected. As there had been some regeneration of the ribs resected in the primary operation, great care was now exercised in the removal of the periosteum, and this was followed by application of the thermocautery. The lung underwent further contraction, and the tympanitic note was replaced by dulness on percussion. The symptoms improved once more, although tubercle bacilli persisted in the sputum. It is pointed out that while recovery was in no sense brought about in this case by operation, a rapidly progressive process was converted into a stationary one; and it is believed that the operation is justified in a relatively small number of cases, in resistant patients with extensive disease of one lung and a good condition of the other lung, in the presence of a tendency to contraction of the lung with rigidity of the thorax.

[1] Berliner Klin. Woch., May 22, 1899.

CHICAGO DIPLOMA-MILLS.

The business done by the Chicago diploma-mills is well illustrated by the fact that the county clerk's official records of physicians in one Michigan town are found to include the names of twenty-three who claim as their alma mater the notorious "Independent Medical College" of Chicago. This may be an extreme case, the diploma-mill graduate may have gravitated for some reason or other especially to that locality, but it is certainly suggestive of possibilities elsewhere. As it does not seem to be the popular thing for the diplomates of the said institution to publish the fact in Polk's Directory, it is impossible to ascertain how many such exist in any particular town or city, but the well-known business methods of such institutions make it probable that they are numerous, especially where the local laws as regard medical practice are or have been lax.

WILL THE PLAGUE REACH AMERICA?

Since the outbreak of the plague in China the disease not only has slowly gained headway in that country, but has also extended its ravages toward the south and is now prevailing to an alarming extent throughout India. At first it was thought that on the advent of hot weather the disease in India would be held in abeyance, but such does not seem to be the case. The report from the larger provinces, received last week, announces that many new cases as well as a large number of deaths have occurred. From India the plague extended westward into Egypt, in which country several cases occurred. Should it gain admission into the region surrounding the zone inhabited by those who make their annual pilgrimage to Mecca, it would not be far from Europe or from direct communication with England. It might at this time be appropriate to study how it might invade the United States by taking an eastern course. For instance at Hongkong where the disease has been prevalent for some time, it is not far to the Philppine Archipelago, between both of which intimate relationship constantly exists. In both of these countries it is safe to say that at the present time but a crude state of sanitary rules is actually demanded. Entrance into the Philippines would seriously embarrass the war now being waged in that country. From the latter country the plague might become transported to our western coast by transports, or vessels of the merchant marine.

SCHOOL NURSES' SOCIETY.

The London School Nurses' Society, which held its first annual meeting June 19, has for its object the supplying of trained nurses to the large schools in the poor districts. The nurses visit the schools and attend to the small ills with which the children may be afflicted, such

as sore eyes, wounds, etc., special mention being made of "sore heels," evidently a common affliction. Each nurse is expected to visit four schools each day, and on an average see about 100 children. The duty of these nurses is also to send the children to a physician, hospital or home, as her judgment dictates, when necessary. The work carried on by this society is certainly a good one. If the nurses do not get a too high idea of their ability, and attempt to treat cases which belong to a physician, they ought to receive all the encouragement that it is possible to give. Such a work in the schools of some of our own large cities would undoubtedly save much prolonged suffering among children, who, through neglect, have to put up with sore eyes, septic wounds, etc., which ultimately might become serious.

"BATTLE OF THE CLUBS."

The medical profession of Great Britain is still contending with an evil that is more or less in existence with us under various disguises, namely, "club practice." The *Lancet*, *British Medical Journal*, and other medical journals have been active in this "Battle of the Clubs," and the degrading influence of such practice has been thoroughly shown up by the exposition made by these papers. The result has been that reputable medical men have refused to serve these clubs and insurance companies which have medical attendance attached and pay their doctor a beggarly pittance while they keep the profits. The profession has become so united in its action, the individual members refusing to serve without adequate remuneration, that the companies and clubs have proposed a truce. Committees appointed by these clubs have met a committee appointed by the General Medical Council, and propose a "Board of Conciliation," to arrange matters in a manner which shall be satisfactory to the medical men. After some opposition in the Council itself, that body, at its recent meeting, accepted the proposition with certain reservations. Whatever the result may be it is certain that if the medical men will stay united they can dictate their own terms. And this they will probably do, for our professional brethren there work more in unison than we do here. While occasionally a man may be found who is so lost to professional honor as to accept a position resigned by another for principle, such are very few in number and, as a rule, lack not only professional honor but medical ability as well. It is certainly to be hoped that this evil, which is insidiously creeping in in various parts of our country, may be met by a similar united action here. These schemers who, under various guises, try to get rich by trading in the services of our profession ought to be made to understand that physicians are not yet ready to be thus exploited for others' benefit.

AN AGGRESSIVE DELUSION.

The JOURNAL has so often called attention to the homicidal pretenders who call themselves "Christian Scientists" and faith healers, that the subject is anything but an agreeable one, but it is one that constantly obtrudes itself in more aggravated form. One of the latest cases is that in which a child was suffered to die for lack of proper treatment while the healers were telegraphing to the notorious Dowie for the benefit of his "absent prayers." The especially aggravating feature of the case, however, was the aggressive policy and behavior of the faith healer. After the father had called a physician, under whose treatment the child had begun to mend, the "divine healers" actively interfered and destroyed the medicines left. Another physician was called by a relative and they constantly and actively interfered with the attendant left in charge by the doctor. Finally they succeeded in preventing any proper medical care and the child died. It seems that the parents, the father especially, were inclined to have medical help, but, as one of the relatives expressed it, "they were dogged by the 'healers' until they were almost exhausted and seemed to have no will of their own." The local paper[1] took the matter up and obtained the signed statements of the physicians and relatives, but was unable to obtain those of the healer at that time. The facts thus brought out ought to arouse the proper legal authorities to action, for here we have evidence enough of wilful and, we might say, malignant, active prevention of the proper measures and a death produced in a rarely fatal disorder, whooping-cough that was twice apparently put fairly on the way to recovery by medical treatment. One rather curious fact of the case remains to be mentioned. The relative who consulted the authorities was informed that nothing could be done without the consent of the child's father, yet he was placed in a room and access refused to him by those in charge. In this case the offenders, it seems, were not the self-styled "Christian Scientists," but the followers of the kindred though rival delusion known as Dowieism. It matters not, however, which it is, as each is alike damnable in every sanitary point of view. It has been suggested, we believe, that the Chicago Zion of this sect should undergo a thorough health inspection, for who can tell what peril to individual health may be there hidden.

INTRATRACHEAL INJECTIONS.

The treatment of the cough and fever of pulmonary tuberculosis with intratracheal injections of dilute solutions of menthol, guaiacol or eucalyptol, which was first employed by Green of New York some years ago, but never generally taken up by the profession, is again attracting the attention of careful clinicians. Thompson of Cincinnati two years ago published in this journal a paper on this subject, and has since reported excellent results from its employment. In cases in which the cough is so excessive as to cause vomiting, and nutrition is in consequence rapidly failing, the placing in the trachea, an hour before eating, of 1 to 3 drams of a 2 per cent. solution of menthol, will permit of both the ingestion and assimilation of the essential nutriment. By this method the detrimental effects of the use of opium and its derivatives to control the cough are entirely avoided. These injections should not be used when there is present acute inflammation of the lungs or bronchi. In bronchiectasis, gangrene and syphilis of the lung, as well as in the case of tubercular cavities, this method excels in efficiency any other for the purpose of reducing fever, limiting the local process, and subduing the odor that

[1] Falls City (Neb.) News.

marks the breath in these cases. When there is suppuration occurring in the lungs or bronchi, guaiacol is the preferable remedy for administration in this manner, and a 1 per cent. solution is usually sufficiently strong to be effective. Under this treatment cavities in the lung have appeared to heal, and certainly the bacilli producing suppuration have been seen to disappear from the sputum. The technic is very simple to anyone at all accustomed to using the laryngoscope. Placing the mirror in the usual position and asking the patient to inspire deeply, the fluid is permitted to flow easily from the syringe into the upper portion of the larynx. If this is done gently there is very seldom any choking or other unpleasant symptom. The method, even though it be essentially symptomatic, is well worthy much wider recognition at the hands of the profession than it at present receives.

LOCATION OF THE PRIMARY LESION OF PULMONARY TUBERCULOSIS.

Birch--Hirschfield[1] made a careful examination of thirty-four cases of latent beginning pulmonary tuberculosis with the special purpose in view of determining the exact place in the lung where the tuberculosis first begins. The bodies examined were those of apparently previously healthy individuals, who had died suddenly. He reaches the conclusion that the general belief that pulmonary tuberculosis in the adult begins as a caseous lobular pneumonia does not correspond with the facts. Interstitial tubercle formation is also exceptional as the primary form of lesion. In the majority of cases the first focus consists in a subepithelial tuberculosis infiltration in the mucous membrane of a bronchus of medium caliber of from the second to the fifth order, according to the usual designation. The peribronchial tissue is secondarily involved. On account of this infiltration the lumen of the bronchus becomes narrowed or closed completely, and the corresponding part of the lung collapses. After the obliteration of the bronchus it is possible that the tuberculous focus may heal, with encapsulation and formation of cicatricial tissue in the collapsed part of the lung. On the other hand, should disintegration of the tuberculous area in the bronchial wall occur, especially likely to take place in consequence of a mixed infection, which undoubtedly plays the principal role in disintegration, then the lumen of the bronchus may again become free and allow the transportation of tuberculous material in both directions. Rupture of vessels in the wall of the tuberculous bronchus, or bronchiectasis, would also be likely to exercise an unfavorable effect upon the progress of the disease. Based on anatomic investigations of the bronchial tree of the human lung, Birch-Hirschfield establishes that the well-known localization of tuberculosis in the apices of the lungs takes place in a definite pulmonary area. This area corresponds to the posterior part of the lung apex and the adjacent subapical district. This tissue is supplied by a bronchial branch which is designated the ramus apicalis posterior. This is the part of the lung which during the time of puberty suffers especially on account of lack of room for growth; the bronchi and corresponding portions of the lung on that account develop poorly. This portion of the chest takes but a very small part in the respiratory excursions. The crippling of this part of the bronchial tree is specially liable to give rise to dead spaces in the bronchi in the posterior part of the apex, in which the conditions are then very favorable for the deposition of infectious material. This local disposition should not be regarded so much as a physiologic product, but rather as the pathologic result of an unhygienic mode of life. In view of these investigations Birch-Hirschfield would emphasize the fact that asepsis of the inspired air and gymnastics of the lungs are both factors which deserve more attention than they have heretofore received, in the prophylaxis and treatment of pulmonary tuberculosis.

[1] Deutsche Arch. f. Klin. Med., 1899.

PYEMIA FOLLOWING THROMBOPHLEBITIS OF SUPERIOR VENA CAVA.

In the case of a man 63 years old, the clinical diagnosis being pulmonary emphysema, bronchitis, albuminuria, and lobular pneumonia, Carl Springer[1] made the following interesting observations: Immediately below the bifurcation of the trachea, the anterior wall of the esophagus presented a diverticulum, at the summit of which was a small opening which led into a cavity situated below and to the right of the bifurcation of the trachea, and having a diameter of 2.5 cm., the contents being purulent material.

The superior vena cava presented a friable, grayish-red discolored thrombotic mass on the intima of that part situated over the cavity mentioned. There were numerous metastatic abscesses in the lungs, the lungs containing staphylococci which stained with Gram's method, and short bacilli destained by Gram's method. Sections passing through the wall of the vena cava at the site of the thrombus showed an intense inflammation and numerous heaps of cocci. Outside of the vein were found tubercles with giant cells and caseous areas. Perforation of the wall of the vena cava had not taken place. It would seem that tuberculosis of the peribronchial lymphglands, followed by caseation and cicatrization, led to the formation of a traction diverticulum of the esophagus. The perforation of this diverticulum, due to some accident, as for instance swallowing a piece of bone, or perhaps due simply to the progressive tuberculous disintegration of tissue, opened the way for a secondary infection from the contents of the esophagus. The suppuration thus produced led to the formation of the abscess cavity described, from which the inflammation invaded the wall of the vena cava, and produced the parietal septic thrombus, from which again infected emboli were carried into the lungs and produced metastatic abscesses. The fatal consequences of perforation of esophageal diverticula usually depend on the fact that the perforation takes place into a bronchus, followed by aspiration pneumonia and gangrene of the lung; in other cases erosion of a blood-vessel may take place, but an involvement of the vena cava of the nature here described does not seem to have been observed before.

[1] Prager Med. Woch., 1899, No. 7.

SOME FALLACIES OF VITAL STATISTICS.

In the April number of the *English Journal of the Sanitary Institute*, Dr. Edward J. Willoughby calls attention to the possible sources of fallacy in vital statis-

ties in a rather striking way. He first refers to what should be the qualifications of the vital statistician; he should not be an actuary nor a mere mathematician, but of a naturally logical mind, trained in matters of scientific inference, inductive and deductive, and should have with this a thorough knowledge of his subject and the sources of fallacy to which it is incident. Crude recorded facts are almost always misleading, and conclusions drawn from them alone seldom correct. Thus, the apparently most rapidly increasing population may be tending to exhaustion, the healthiest show the highest death-rate, short-lived communities may have the most old people, the age at death be least in the healthiest occupations, and deaths at advanced age be no evidence of conditions favoring longevity. All conditions, and there are a host of them, should be taken into account. Thus infant mortality may be low, but if the birth-rate is also low it may indicate a serious state of affairs, and vice versa. The mortality of infants under 1 year old should be calculated on the birth-rate, and for every subsequent year, on the number actually living at that age. A shifting and a stationary population present quite different conditions when one comes to estimate from statistics such matters as the average duration of life, the mortality at different ages, etc. So also with occupation, it would be easy to show that in some of the healthiest the death-age was low, simply because they are only followed by the young, but it so happens that sanitary statisticians have occasionally overlooked even this simple fact. Also in estimating the relation of marriage to births a fallacy is likely to creep in unless the calculation is made, not on the number of marriages, but on that of women who marry. These are only individual instances of a large number of possibilities of error when all the existing conditions are not taken into account. Dr. Willoughby's paper is noteworthy, not as contributing previously unknown facts, but as calling attention in a vivid way to facts too often overlooked.

ELEPHANTIASIS A SEQUEL OF REMOVAL OF THE INGUINAL GLANDS.

A rare but very important sequel of removal of the inguinal glands has been brought to the attention of surgeons by Hamann in a paper before the Ohio State Medical Society. He reports in detail one case, occurring in a woman operated on for the radical cure of femoral hernia, in which incidentally some of the saphenous and inguinal lymph-glands were removed, and also notes having seen three cases following removal of the inguinal glands for adenitis. While this complication is rare, it is of such grave importance to the surgeon that it should always be considered when operating in this region, and it may well be that, once attention is drawn to this curious complication, it may prove not to be so rare. Clinically the cases in a few days or a few weeks after operation suffered with acute and recurrent attacks of lymphangitis with lymphatic edema, due to interference with lymph-flow produced by removal of the glands and by the cicatricial contraction. These attacks were characterized by fever and sensations of chilliness. The genitalia were the seat of a firm edema with a sensation of fullness, and at times slight redness, itching and pain. The attacks resemble erysipelas, but no connection with it has been determined. Each succeeding attack leaves the parts more hypertrophied, the connective tissue increases in amount, and gradually a condition of elephantiasis is established. Riedel[1] reported two cases of this character following extirpation of the inguinal glands, which led him to abandon the operation entirely, substituting for it incisions and curetting. Bayer[2] has thrown very clear light on the pathology of the disease. He shows that the loose periglandular fat and areolar tissue contains an extensive system of lymph-spaces. From this tissue in from three to six weeks after destruction or removal of the contained gland, regeneration of the gland and the vessels quite frequently occurs. It follows, that, if during the operation, or in subsequent suppuration this periglandular fatty tissue has been destroyed, regeneration of the gland cannot occur and a condition favorable to the development of elephantiasis exists. Hence he advises that part of the fatty tissue be always allowed to remain, and that every effort be made to avoid suppuration. These conclusions are of all the more importance because when once the elephantiasis is established nothing can be done for its relief, except wide excision, which is unsatisfactory. As a very unpleasant pitfall in the way of surgeons operating in this region this complication deserves very careful consideration.

ARTHRO-NEURALGIA.

This name has been given to a nervous, painful affection of one or more joints that occurs especially in women, and may simulate an organic or an inflammatory disorder. It is scarcely a distinct disease, but rather a manifestation of hysteria. A typical instance is related by Nartowski[1]. The patient was a woman 32 years old, who presented herself on account of pain in the knees and weakness in the feet. The family history was neurotic, and the father had been alcoholic, dying of some obscure nervous disorder. The mother, who had been a niece of the father, had suffered much from headache, and had presented hysteric symptoms. As a child, the patient had been irritable and excitable, with a good comprehension and a good memory. Menstruation had set in at the age of 16, and was regular, without noteworthy discomfort. The patient was married at 23, and bore three children, after the birth of the last artificial means being taken to prevent conception. The patient felt dissatisfied, cried a good deal, suffered from headache, and passed through periods of excitement. There was often present the feeling of a ball rising from the hypogastrium to the throat. The appetite was lost; vomiting took place soon or several hours after eating and constipation was present, with palpitation of the heart. Two years before coming under observation she was startled by the barking of a dog, when she was seized with palpitation of the heart and severe pain in both knee-joints, preventing further locomotion. The pain alternated with feelings of coldness, of heat, and of numbness. These phenomena had persisted, and were aggravated at the menstrual period. The knee-joints appeared slightly swollen, were fixed in extension, and sensitive to

[1] Arch. f. Klin. Chir., Bd. xlvii, p. 216.

[2] Prager Ztschr. f. Heilkunde, Bd. vi, p. 105; Arch. f. Klin. Chir., Bd. xlix, p. 637.

[1] Wiener Med. Woch., May 1899, p. 1003.

slight pressure with the finger, and even to the touch of a brush. The raising of a fold of skin caused great pain, but deep pressure or approximation of the bony constituents of the joint induced none. The knee-joints and the regions thereabout were red, especially at the menstrual period, but they soon became normal. The electric reaction of the muscles was normal. Passive and active movement of the joints was attended with pain and grating. The patient was encouraged to hope for recovery, and passive movement of the joints was practiced. On the sixth day the static spark was applied to both knee-joints. Improvement rapidly ensued, and the patient was soon entirely cured.

Medical News.

DR. TRACY C. WITHERSPOON, St. Louis, has been elected to the chair of surgery in the Marion Sims College of Medicine.

A PRIZE of $100 is to be offered at the next annual meeting of the New Jersey State Medical Society for the best essay on "Hydrophobia."

THE FIRST case of yellow fever which has appeared in quarantine, New York City, for some time was brought in by a Norwegian steamship from Cuba on June 29.

DRS. CHARLES H. HUGHES, Henry H. Mudd, A. C. Bernays, W. H. Fischel, Charles Borck, F. L. Henderson and I. N. Love, all of St. Louis, Mo., will spend August in Europe.

THE NEW buildings of the London Hospital Medical College are about completed, and will be opened by Lord Knutsford July 18. The new laboratories, wards and museums of Guy's Hospital were opened July 7.

DR. C. M. NICHOLSON, St. Louis, a few days ago married the daughter of the Hon. Norman J. Coleman, who was a member of President Cleveland's cabinet, being the first secretary of agriculture.

A FRENCH committee is raising funds to erect a monument to the memory of Pelletier and Caventou, the discoverers of quinin, for which contributions are being received from all quarters of the globe.

PROFESSOR STOKVIS of Amsterdam recently celebrated his twenty-fifth professorial anniversary. As *Janus* remarks, "without him a number of useful institutions would never have existed, *Janus* included."

DR. G. P. ROBINSON of St. Louis, for many years professor of theory and practice in the Missouri Medical College, and also dean of the college, has retired from both positions. He has been placed on the emeritus list.

DR. D. R. BROWER of Chicago has been honored by the degree of LL. D., conferred by the Georgetown University, Washington, D. C., at its recent commencement. Dr. Brower expects to leave shortly for a six weeks' trip to the Hawaiian Islands. He will be accompanied from San Francisco by Professor Senn.

THE POPE has recently presented an oil portrait of himself to Dr. Mazzoni, to whose skill the Holy Father attributes his present good health. The Pope also made Dr. Mazzoni "Surgeon in Chief to the Apostolic Person," a position of honor and trust, but with very little pay.

BENDER BOUCHIR, the most important post on the eastern coast of the Persian Gulf is now invaded by the plague. As all the Anglo-Indian trade for the interior of Persia passes through this port, the danger of further contagion is imminent.

IT IS gratifying to state that the charge preferred against Dr. Trumbull W. Cleaveland, New York City, in the case of Violet Irene Carhart, in which death followed the administration of resorcin and salol, was dismissed from court on June 23.

DR. ALVA H. DOTY, health officer of the port of New York, claims that in two years' work in connection with Chas. E. Fitzpatrick in his laboratory on Swinburne Island, he has succeeded in confirming the alleged discovery of Sanarelli's bacillus of yellow fever.

A CABLEGRAM to the *Philadelphia Ledger* announces that Count Malherbe, the Russian Consul at Buenos Ayres, controls the manufacture of the Sanarelli serum for yellow fever. It is said that 300 bottles have been prepared quite recently, and will be sent to New York City.

THE NEXT congress of the French Association for the Advancement of Science will be held at Boulogne September 14-21. A subsection on medical electricity has recently been established by the Association, and several important papers are promised in this branch of medicine.

AMONG THE Docenten recently raised to professorships are K. Benda, P. Heymann, and G. Salomon, Berlin; B. Von Kader called from Breslau to Charkow in place of the deceased Prof. E. Grube, while Geheimrath A. Fick, for many years professor of physiology at Würzburg, has resigned.

PROFESSOR RAYMOND, who commenced his life work as a veterinary surgeon, and who succeeded Charcot as professor of nervous diseases at the Hospital de la Salpêtrière, Paris, has just been elected a member of the Academy of Medicine. The vacancy was occasioned by the death of Professor Laboulbène..

THE REVUE MEDICALE DE LA SUISSE ROMANDE has recently published a comprehensive study of "Excision of the Seminal Vesicle and Vas Deferens in Case of Castration for Primary Tuberculosis," the conclusions of research with Roux of Lausanne, signed with the author's name in full, Princess Guedroytz de Beloseroff.

A STATUE of Duchenne de Boulogne is to be unveiled with much ceremony at Boulogne, during the meeting of the French Association for the Advancement of Science, September 14 to 21. The addresses in the new section of medical electricity include endodiascopy by Bouchacourt and electrolysis of strictures by Bordier.

A HYDROPHOBIA panic is reported in Jennings, Pawnee county, Oklahoma, date of June 26. A large mortality among hogs and cattle has occurred and horses and mules are not exempt. While no deaths of human beings are yet reported, several people have been bitten. A vigilance committee is disposing of the dogs and other animals affected.

DR. C. A. L. REED of Cincinnati leaves for Europe in about two weeks, and expects to be gone about ten weeks. During his absence he will visit the British Medical Association, International Gynecological Congress at Amsterdam in August, and the Brussels Congress for the Repression of Syphilis and Venereal Diseases in September.

SINCE the return of Surgeon J. C. Boyd, from the International Tuberculosis Congress the Government has been considering the proposition of erecting in the Southwest a sanitarium for consumptives in the service of the merchant marine. It seems that the greatest

difficulty so far manifested is to select a region which may be easily reached by all lines of travel.

The same plan has been adopted by the University of Pennsylvania in the appointment of the successor of Dr. Charles B. Penrose, professor of gynecology, as was done in the appointment of the successor to Dr. John B. Deaver, in that announcement is publicly made that all candidates should make a formal application to the dean of the medical department prior to September 18, 1899.

Several weeks ago a peculiar bug made its presence known in Washington, D. C., where it caused considerable anxiety from the fact that its bite gave rise to serious symptoms manifested by intense pain and rapid swelling, mostly confined to the lips. Under appropriate treatment the inflammation subsided in about forty-eight hours. Cases have since occurred in Philadelphia and New York City.

In Portugal the government informs the chief physicians in a town that a certain sum is required of the local profession for the internal revenue. The local physicians assemble and partition the assessment among themselves, according to the supposed income of each. There is a similar arrangement for each profession and a court of appeals for those dissatisfied with their assessment.—*Echo Medical,* June 11.

Professor E. A. Schaefer has been elected professor of physiology in the University of Edinburgh. Professor Schaefer has been actively engaged in teaching for many years as Jodrell professor of physiology in University College, London. He has made many valuable contributions on various physiologic subjects, is the author of a text-book on histology, and is the chief editor of the new edition of Quain's Anatomy.

The cable announces, from Santiago de Cuba, that Surgeon Clendennin died there July 4, of yellow fever. Captain Clendennin was a native of Illinois and entered the army as an assistant surgeon in November, 1886. He reached the grade of captain in November, 1891. In June, 1898, he entered the volunteer establishment as a brigade surgeon with the rank of major, and was in charge of the army hospital at Santiago.

The University of Kiel has arranged for post-graduate medical courses this summer, and the peculiar attractions of this northern port and its neighborhoood to popular resorts, will no doubt attract many students.

The expenses of the Russian Pharmaceutic Congress, to meet at Moscow in December, are to be defrayed by a rouble paid to the treasury by the pharmacists for each thousand prescriptions filled at their establishments during 1898.

A committee made up of Drs. Philip Marvel of Woodbury, Wm. Pearson of Orange, B. A. Waddington of Salem, E. Hollingshead of Mt. Holly, and Alexander McAllister of Camden, has been appointed by the New Jersey State Medical Society to arrange for the entertainment of the American Medical Association at Atlantic City next year. It is thought the sum of $2500 will be raised for the entertainment of the members of the Association.

From the outbreak of yellow fever at Santiago, Cuba, to June 25, there was reported a total of 33 cases and 5 deaths. One death occurred in the case of a member of the Fifth Infantry while the others were civilians. On June 28, 14 new cases were reported, bringing the total number of cases up to 50. So far 12 deaths have occurred. During the present year 13 cases have occurred in Havana, of which 5 proved fatal. At present there are no cases of this disease in either Havana or Porto Rico.

The Bureau of Health of Philadelphia has come to the conclusion that the milk of this city is not as pure as was supposed a short time ago. It has been learned that formaldehyde has been added to keep it from turning sour. In order to do this a strength of 1-100 of 1 per cent. is all that is required. It is believed that the preservative is being sold in the form of a 40 per cent. solution. Wood alcohol has also been present in some samples.

Mr. Lawson Tait's death was quite sudden, according to the *Lancet.* On June 13 he was seized with pain and serious symptoms connected with the kidneys, and died at 3 o'clock in the afternoon. The renal disease was of some duration, for two years ago a calculus became impacted in his urethra. This was removed by a surgical colleague, but his health had been indifferent since, and no doubt the disease which ultimately caused his death was progressing in the interval. According to his wishes his body was cremated.

Several physicians of Lille, France, have applied their scientific knowledge in perfecting industrial processes and have made large fortunes as more or less silent partners in manufacturing establishments. Professor Calmette recently presented the institute of which he is a director with a large sum given him by the proprietor of a certain industry as a share of the amount saved by certain improvements suggested by the scientist. The physicians in France take a prominent part in legislation, and the proprietor of a certain model candy factory is a practicing physician, formerly an army surgeon.

The Dreyfus matter, according to the *British Medical Journal* has been the occasion of serious disturbances in the medical school of Lyons. Professor Augagneur had taken an active part in manifestations in favor of Captain Dreyfus and President Loubet, and the students attending his lectures had expressed their sympathy with him in this line of conduct. The next day the professor's lecture-room was invaded by a mob of persons, for the most part not belonging to the school, who made such an uproar that it was impossible for him to lecture. The Dean has posted up a notice, dated June 10, to the effect that the course of surgical pathology will be suspended till further orders.

Consolidation of the *Louisville Medical Monthly* and the *Louisville Journal of Surgery and Medicine* is announced, the two being issued after July 1, as the *Louisville Monthly Journal of Surgery and Medicine.* The *Louisville Medical Monthly* was purchased by Dr. Henry E. Tuley, early in June, he having edited one issue, that of July, and the *Louisville Journal of Surgery,* which continues the *Quarterly Journal of Rectal and Gastro-Intestinal Diseases,* was owned and edited by Drs. J. M. Mathews and H. Horace Grant. The following will be the editorial staff of the new monthly: Drs. J. M. Mathews, H. Horace Grant, A. M. Cartledge, and Henry E. Tuley. Dr. Grant will be business editor and Dr. Tuley managing editor.

A member of the Stille School of Osteopathy has opened an office for the summer in St. Joseph, Mo., and by his sign announces to practice medicine and surgery as well as osteopathy. The efforts of the American Medical Association, and the Association of American Medical Colleges to elevate the status of the medical profession are seriously handicapped in Missouri. Owing to the restricted power of the State Board of Health, and the indifference of the present governor and legislature the

state is overrun with osteopaths, magnetic healers, vitapaths, Christian Scientists, Divine Healers and frauds of every kind. A school of magnetic healing has recently been opened in the state, turning out healers in thirty days. The necessity of the doctor being a politician is evident in this state.

ACCORDING to the *Peoria Transcript*, Francisque Crotte, who gained such notoriety a little while ago when he alleged endorsement of the AMERICAN MEDICAL ASSOCIATION, left Peoria quite suddenly recently without leaving his address. According to the above paper, his associate and all the belongings of the pair have disappeared and the whole affair is enveloped in darkness and mystery. The paper goes on to say that Crotte's plan to start a sanitarium at Pekin, where he claims to have found mineral water with the necessary constituents for a successful treatment of consumption, has failed. The general denial of the endorsement of the ASSOCIATION of this man Crotte, made in the JOURNAL of June 17, and which was sent over the country by the associated press, evidently had its effect in thwarting the plans of this latest schemer.

A STATUE of Baron Larrey was recently unveiled at the military school of Val-de-Grace, near Paris, with appropriate ceremonies in honor of this surgeon and military hygienist who most worthily carried on the traditions of the great name of his father, the Baron Larrey of Napoleon's day. Of both it has been said that they were men and surgeons of "impeccable honor;" both were present in all the campaigns of their day; the father in sixty battles and four hundred engagements; the son, "Antwerp, 1832, Italy, 1859, and Army of the Rhine and Siege of Paris, 1870-71," although he never equaled his father's record of two hundred amputations in one day. In a notice of the father (JOURNAL, XXX, 1003) it is said that his name stands only below that of Ambroise Paré, and the name of the son has been connected with nearly every improvement in the French military health department during the century.

THE NEW City Hospital commission for St. Louis has introduced ordinances into the City Council for the immediate commencement of new buildings. By amendment to the charter, 1 per cent. of all city revenue is applicable to the above purpose; $200,000 is now available, and within a few years buildings to the value of several millions will be erected. The old grounds, left after the destruction of the old city hospital by the cyclone a few years ago, will be utilized. The pavilion plan will be followed in the construction. Dr. Max C. Starkloff, St. Louis' excellent health officer, recently appointed to his second term, will aggressively push the work. It is gratifying to know that the clinical teaching staff of the medical colleges will, in the new hospital, have absolute control of all patients, internes, etc. The medical educational interests of St. Louis will surely be the gainers.

ON ACCOUNT of the recent death in Philadelphia of a patient under treatment by "Christian Scientists," much interest has been aroused in this subject by the daily papers. One paper especially is deserving of much credit in the manner in which it has investigated the claims of this sect. A correspondent of the *Philadelphia Press* is said to have recently gone to New York, passed the required examination and received the degree of "C. S.," which degree is said to confer upon the recipient the power to heal all manner of ailments, as well as to displace all medical attendants of whatever nature. So far Dr. Henry Beates, president of the State Board of Medical Examiners, seems to be the one most interested in bringing the matter prominently before the district attorney. In order to determine the legal status of the case, Dr. Beates has addressed a personal communication to the district attorney, asking for a strict construction of the law governing the matter. Dr. Beates has also communicated with the attorneys-general of many states on this question, and from many has received replies indicating that urgent steps could be taken in case of death while under this method of treatment. Many defects in the laws are supposed to exist, and in order to bring them into harmony it has been suggested that the matter be referred to the Attorney-General of the United States. Regarding the case in Philadelphia, it is believed action will commence as soon as Attorney-General Elkin is heard from.

PRACTICAL TRAINING IN SANITARY SCIENCE AND PUBLIC HYGIENE.—Dr. Arthur R. Reynolds, health commissioner of Chicago, has hit upon a novel method of supplementing the inadequate force of his department. This is not meant invidiously, since, as will be seen by the following, the Doctor offers a full *quid pro quo*. He has, during the past two years or more, tentatively admitted recent graduates in medicine and senior undergraduates, intending to enter the field of preventive medicine, to the department laboratory for practical work and instruction in chemic and bacteriologic analyses and examinations of water, milk and foods, in general bacteriology and in the special bacterial diagnosis of disease. Observation of the results of this experiment has, he says in a circular letter, dated July 1, led him to believe that the opportunities and facilities thus afforded may be of great value to the future sanitary executive and health officer, and he is now desirous of systematizing the effort and making its use more widely available. He points out that "the growing popular interest in sanitary science and public hygiene is creating a demand for trained sanitarians and medical officers of health which opens up a wide field of usefulness and employment for those members of the profession who shall especially equip themselves for the work. For this equipment a practical training in the varied labors of a metropolitan health department, in which the more or less theoretic education of the college may be supplemented by the test of practical application, should be of much use." Some idea of the extent and variety of the laboratory work of the department may be formed from the following figures: During the last year 2623 bacterial examinations of suspected disease were made, chiefly of diphtheria, typhoid fever and tuberculosis; and 2635 bacterial examinations of water, ice, milk, vaccin lymph, butter and other foods. During the same period nearly 30,000 chemical analyses were made of milk and cream, water, ice, etc. During the first five months of this year, in addition to an increased proportion of examinations for diphtheria, typhoid and tuberculosis, 1030 examinations for the Canon-Pfeiffer bacillus were made and a flood of light thus thrown on the etiology of influenza. Since the identification of the scarlet fever organism by medical inspector Class, more than 500 examinations of scarlet fever have been made in the laboratory and the bacterial cause of this disease has been demonstrated biologically. The chemical work of the laboratory, the labors of the Bureau of Sanitary Inspection, of the Division of Contagious diseases, the Bureau of Vital Statistics, the antitoxin and disinfection services are equally comprehensive and furnish a practical sanitary training school.

Therapeutics.

FOR THE ESTABLISHMENT OF FREE SECRETION

of all the organs Vandoren recommends the following prescription:

R.	Tincturæ aconiti		
	Tincturæ bryoniæ āā.....gtt x.		5
	Tincturæ digitalis 3i	3	90
	Potassii nitratis 3ss	1	95
	Extracti ipecac fluidi .....gtt x.		5
	Syrupi pruni Virginianæ q. s. ad. ..℥iv	120	

Misce. Sig. For adults, teaspoonful diluted every hour until patient is better; then only as seems to be required, say every three hours while fever lasts.

Foster says, "Digitalis given in physiologic doses and along with strychnin, is administered until the pulse comes down to 90 a minute. If it can be kept there, recovery will ensue in a shorter time, as a rule, than by the use of other methods of treatment," in all of which we heartily concur. In addition to the action of digitalis upon the heart, the drug unquestionably exerts some specific action upon the disease. In order, however, to get the antitoxin effect of digitalis, the remedy should be given in the form of an infusion in doses of from 4 to 6 fluidrachms (16-24 gm.) every three or four hours, and commenced the first or second day of the disease.

HEART TONIC.

E. G. Tuffs recommends as a heart tonic, especially in asthenic cases:

R.	Strychninæ sulphatis .....gr i-iii		02
	Pulveris camphoræ 3i	3	90
	Sacchari lactis .....gr xx.	1	30

Misce. Fiat Capsul. No. xii. Sig. One every four or six hours.

Leonard Weber, however, suggests a better method of combating heart failure; he says, "I have seen excellent results from hypodermics of one-half drachm (1.95 gm.) of a 20-per cent. solution of camphor in oil, administered every half hour as indicated, and of strychnin, gr. 1-20 (1.29 gm.) two or three times in twenty-four hours, to support the heart."

IN HEPATIZATION TO PROMOTE ABSORPTION.

R.	Ammonii carbonatis 3ii	7	80
	Potassii iodidi 3iss	5	85
	Syrupi aurantii corticis .....℥ii	62	20
	Aquæ .....℥ii	62	20

Sig. Teaspoonful every two hours.

L. B. Young.

TREATMENT OF TETANUS.

What appears to be one of the most distinct advances in modern therapeutics is Baccelli's method of treating tetanus, as summarized by H. C. Wood, Jr. in *Merck's Archives* for May. This consists in thoroughly disinfecting the wound, if any exists, placing the patient on light diet in a perfectly quiet room, and administering subcutaneously a 2-per cent. solution of carbolic acid. To begin with, 3 grains of the drug may be given in twenty-four hours but this may be rapidly doubled, or even trebled, with safety, as there is a remarkable tolerance to carbolic acid manifested by men and animals suffering with tetanus. Ascoli (*Bull. d. Reale. Accad. di Roma*, Feb., 1899) has made a careful study of the results of this treatment and compared them with those obtained from the use of the antitoxic serums. Dr. Wood's table, the results of this comparison, is so graphic as to be worthy of reproduction, as follows:

Method.	Cases.	Deaths.	Treatment.	Mortality.
Baccelli	34	1	25	3.2
Tizzoni	42	7	23	17.8
Behring	28	10	33	35.7

It will be seen that the advantage which these statistics give to the Baccelli method over the serums of Tizzoni and Behring is enormous, so much so as to give rise to a considerable degree of incredulity, which, however, must give way before the reputation of Ascoli. Most writers rate the mortality of tetanus at from 80 per cent. to 95 per cent. As a rational basis for this treatment it is noted that Kitasato found that a 1.5 per cent. solution of carbolic acid annulled the toxic power of the tetanus bacillus. Of course, his laboratory conditions cannot be secured in the body, but in the latter case, as Wood well points out, the blood-serum is already engaged in combating the toxins of the disease. It has long been known also that carbolic acid has specific relations with the nervous system. Certainly in view of the facts that carbolic acid has no such unpleasant sequels as have been noted after the use of the tetanus antitoxins, and that the remedy is always at hand, coupled with the favorable results noted, the physician caring for a case of this dreaded disease should consider this method very seriously. The ordinary symptomatic treatment should be continued along with the carbolic acid.

ICHTHYOL IN SCIATICA.

J. Crocq, in *Semaine Med.*, announces that ichthyol is the most effective substance known for sciatica, although by no means a specific. Fourteen were entirely cured and four very much improved, so that they could resume their occupations, out of twenty patients with rebellious sciatica thus treated. Six to eight capsules, each containing ten centigrams of ichthyol, are taken during the day, and the painful region is anointed with the following mixture: ichthyol, 20 grams; chloroform and balsamum tranquillans, āā 30 grams.

FUNCTIONAL ALBUMINURIA.

Diet is the most important element in treatment. Strict attention, however, should be given to hygiene while the kidneys should be well flushed with plain or alkaline waters and hot water before meals. Aitken recommends the following prescription:

R.	Acidi gallici .....3i-℥ii	3.9-7	80
	Acidi sulphurici diluti 3ss	1	95
	Tincturæ lupulini 3i	3	90
	Infusi lupuiini, q. s. ad.....℥vi	186	60

Misc. Sig. Tablespoonful three times daily.

Butler has successfully employed the following method of treatment. Correct gastric and intestinal indigestion, by regulating the diet and, if necessary, to temporarily aid digestion, pepsin, taka diastase or diluted hydrochloric acid being administered according to indications. The bowels should be kept freely open, and occasionally a blue pill given. In addition, as a routine treatment, the patient should take from 5 to 10 minims (.24-.6 gm.) of Fowler's solution, and 5 to 8 grains (.3-.5 gm.) of benzosol after each meal.

ACUTE NEPHRITIS.

For a child of six or eight years.

R.	Tincturæ digitalis 3ss	1	95
	Liquoris ammon. acetatis .....℥iss	46	60
	Spiritus ætheris nitrosi 3ii	7	80
	Syrupi tolutani .....℥ss	15	50
	Aquæ cari q. s. ad.....℥iii	93	30

Misce. Sig. Teaspoonful every two hours.

Goodhart and Starr.

Brouovski says strontium lactate 60-90 grains (3.8-5.7 gm.) daily, is a pure diuretic, and is more valuable than any other remedy in the treatment of acute inflammatory conditions of the kidney.

ACUTE LOBAR PNEUMONIA.

During the first few days of the disease, C. J. MacGuire advises perfect rest in bed so far as possible, and calomel, gr. 1-15--1-5, according to effect, every three to six hours, and

R.	Liq. ammonii acetatis 3i	31	10
	Tinct. opii camphoratæ 3vi	23	40
	Spiritus ætheris nitrosi 3iv	15	60
	Aquæ laurocerasi .....℥ss	15	50
	Syrupi tolutani .....℥ss	15	50
	Aquæ camphoræ q. s. ad. .....℥iv	124	40

Misce. Sig. Dessertspoonful every two hours in water.

During the early stage accompanied by much inflammatory pain, Foxwell recommends the following:

℞. Tincturæ aconiti m. i (.06 gm.) every half hour for twelve doses, then every hour, or antimonii et potassii tartras gr.⅛ (.008 gm.) every hour for twelve doses, then less frequently. We think it much wiser to administer m.½ (.03 gm.) every half hour, in a teaspoonful rathreth an a larger dose.]

In exhaustion, strychnin, hypodermically, in full doses, from 1-20—1-12 grain (.003-.005 gm.) every two or three hours, while in collapse, or when it is threatened, or at a time of crisis, Wood and Fitz recommend atropin. Its checking excessive sweating often gives it further advantage; caffein in small dose as an adjuvant or, in special cases, to overcome stupor. We quote further, from Wood and Fitz, "When, in the first twenty-four hours of a pneumonia, there is violent constitutional reaction, with flushed face, rapid and noisy breathing, bloody sputa, intense headache and drowsiness, a hard, bounding, or a tense, corded pulse, venesection may markedly lessen all symptoms, and, if combined with dry cupping over the whole chest, may, we believe, lessen the amount of engorgement of the lung and the final area of consolidation."

CHRONIC NEPHRITIS.

An invaluable diuretic in this disease is Trousseau's diuretic wine.

℞.	Junip. contus 3x	39	00
	Pulveris digitalis 3ii	7	80
	Pulveris scillæ 3i	3	90
	Vini Xerici .....Oi	497	60
	After macerating for four days, add		
	Potassi acetatis 3iii	11	70

Express and filter. Sig. For an adult, a tablespoonful three times daily.

W. H. Thompson recommends the following as a simple diuretic mixture:

℞.	Spiritus ætheris nitrosi 3iss	5	85
	Tinct. ferri chloridi		
	Tinct. nucis vomicæ āā.....3i	3	90
	Syrupi 3iii	93	30

Misce. Sig. Two teaspoonfuls, three times daily.

Diuretin in 15-grain (.92 gm.) doses every three or four hours will stimulate the kidneys in certain cases better than almost any other remedy. It should be administered in solution in some aromatic water, but should never be dispensed in powders. The drug being incompatible with acids, the remedy should not be given immediately after eating, lest unpleasant symptoms arise from the action of the gastric juice upon the drug.

For the purpose of stimulating the kidneys, Dr. J. M. Patton advises the following:

℞.	Hydrargyri chloridi mitis gr. xviii....	1	17
	Sacchari lactis .....q. s.		

Misce. Fiat cht. No. vi. Sig. One powder three times daily while the bowels are kept closed by opium.

Eberle recommends for ascites:

℞.	Potassii bitartratis .....℥i	31	10
	Potassii sulphatis .....℥ss	15	50
	Pulveris scillæ 3ii	7	80
	Antimonii et potassii tartratis... gr. i		06

Misce. Sig. One teaspoonful in a glass of water every four hours until active purgation and diuresis follow.

Miscellany.

Pollution of Rivers.—A large committee has been studying the river water in various parts of Germany, and has come to the conclusion that the refuse from factories, etc., is a much more important source of pollution than human dejecta, which, when previously duly filtered, need cause no concern. This report has been sent to each town interested in the question.

Medical Tribunals of Honor.—Those recently established in Prussia (see JOURNAL, xxxii, p. 507) are not exclusively medical, as the court is composed of four physicians and one judge, and they are flagrantly unjust in one particular at least: they only include in their jurisdiction diplomaed members of the profession. Individuals practicing medicine irregularly are exempt from molestation by them as long as they abstain from assuming the title of physician or doctor, and physicians serving the state, and thus already under official discipline, are also exempt. Virchow, Langerhans and many others fought the measure in the Landtag, and thousands of protests were received, but as the *Semaine Medicale* observes, the Confederated States of Germany display a marked tendency to make the professions all feel the weight of authority.

Government Restrictions on Exportation of Plague Microbes.—The Indian Government has done very wisely in placing certain restrictions on persons wishing to carry or send cultures of the plague bacillus out of the country. To our mind the only remarkable thing is that steps were not taken in this direction before; for it is well known that many medical men who came to India for plague duty took with them specimens of the plague bacillus when they left the country. . . . The present action of the Indian Government is based on a representation from the health officer of the Port of Bombay, to the effect that a certain doctor took cultures of the plague bacillus on board the P. and O. ship *Carthage*, and continued to make experiments with them during the voyage. No cases of plague occurred on board; but it was noticed that two dead rats were found on the return trip to Bombay. Considering the close association between dead rats and plague, this fact, if known, must have caused general alarm, and we have no doubt that very considerable expense was incurred in the thorough disinfection of the vessel.

Professor Haffkine, the sanitary commissioner with the Government of Bombay, and the surgeon-general with the Government are agreed that the practice is most dangerous and should be stopped, and on their recommendation the Government of India, in exercise of the powers conferred by Section 2 of the Epidemic Disease Act of 1897, has issued the following regulations:

1. No person without the written or printed permission in this behalf of the Local Government in whose territories the port is situated, under the signature of a secretary to Government first obtained, shall take, either on his own person or in any baggage or parcel, or as cargo or otherwise howsoever, or shall send or permit to be taken or sent, on his account, either on the person of another or in any baggage or parcel, or as cargo or otherwise howsoever, any plague microbes or cultures on board any vessel in any port in British India.

2. No person, whether he has or has not obtained permission as herein required, shall take, send, or permit to be taken or sent as aforesaid, any such microbes or cultures, on any such vessel at any such port unless and until he has

a. Given fourteen clear days' notice in writing of his intention so to do to the health officer of such port, and

b. By a certificate signed by such person, and in such other manner as may be required by such officer, satisfied such officer that all such microbes or cultures are addressed to and intended for scientific purposes at some recognized constituted laboratory or laboratories specified by such person in his own handwriting, and are secured in a tin or tins, of adequate strength, hermetically sealed, and labeled with such distinguishing inscription as will suffice to make immediately manifest the nature of the contents thereof.—*Indian Medical Record*, May 31.

Provision for Physical Examinations Valid.—The New Jersey act of May 12, 1896, entitled "A supplement to an act entitled 'An act concerning evidence,'" and providing that on or before the trial of any personal injury case the court may, on application of any party therein, order and direct an examination of the person injured as to the injury complained of by a competent physician or physicians, surgeon or surgeons, in order to qualify the latter to testify as to the nature, extent and probable duration of the injury complained of, the supreme court of New Jersey holds, is constitutional. It considers that the proceeding authorized by the statute is a proceeding to obtain evidence analogous to proceedings that authorize an in-

spection of property and the taking of depositions, and that a statutory enactment such as this properly comes under the title of an act concerning evidence. Nor does it think that this act can be regarded as an infringement of the constitutional right of a party in a civil suit to be confronted by the witnesses. And it declares that neither will the consideration of any unfairness in resort to these proceedings be of any avail. The subject being deemed within the cognizance of the legislature, the legislative policy must prevail. In many of its sister states, the supreme court of New Jersey continues, case of McGovern vs. Hope, orders of this sort have been made; in others refused. In the main, the orders have been made under a power inherent in the court, and in some of the courts denied solely on the ground of lack of competent legislative authority. In the trial of causes, it goes on to say, orders have been made requiring a party alleged to have sustained an injury which is the subject matter of the suit to exhibit the injured limb to the jury, where such exhibition would not be accompanied by indecent exposure; and orders have been made in the courts of New Jersey without objection for the examination of the injured party in an adjoining room by reputable physicians, and such examinations have been had. In proceedings for divorce and nullity of marriage, orders for inspection of the body which are indelicate and distressing to the parties are made whenever necessary, and it is settled that the courts are not at liberty to decline to order such an inspection on the ground of indelicacy alone. This leads the court to go on to declare that where a suit is brought in which there is involved the consideration of injuries of a delicate nature, and which are, nevertheless, made the basis of damages to be awarded by a jury, there is no reason why such orders should not be made as would be appropriate to the administration of justice. The plaintiff, having brought suit and made claim for damages on account of personal injuries of that nature, cannot complain that the defendant resorts to legal methods to ascertain the existence and extent of such injuries. In executing the powers conferred upon the court under this statute in question, the supreme court says, the proceedings will be so controlled in the designation of physicians and surgeons, and with respect to the mode in which the examination shall be conducted, as to give both parties an equal opportunity of having witnesses present at the examination; and will also require, as far as practicable, the examination to be conducted in such a matter as not to subject the plaintiff to any unnecessary annoyance or exposure of her person.

Louisville.

VACATIONS.—Drs. J. M. Mathews and H. Horace Grant will leave on the 12th for Europe, where they will attend the meeting of the British Medical Association. Dr. I. N. Bloom, appointed chairman of the delegation to the dermatological section of the International Congress, will leave early in July for that meeting. Dr. J. B. Marvin will spend the summer in California. Dr. Henry E. Tuley will spend the month of August at Star Island, Mich. Dr. J. W. Guest, one of the city physicians, will be resident physician at Rockcastle Springs, Ky., for the summer.

COMMENCEMENTS.—The annual commencements of the spring and summer medical colleges were held last week. The Kentucky School of Medicine awarded twenty-four diplomas. The medical department of Kentucky University graduated nine, and the Hospital College of Medicine seventeen.

Philadelphia.

MORTALITY STATISTICS.—The total number of deaths which have occurred in this city during the week just passed was 420, an increase of 41 over last week, and a decrease of 135 over the corresponding period of last year. The principal causes of death were as follows: Apoplexy, 16; nephritis, 28; cancer, 14; cholera infantum, 36; tuberculosis, 45; diabetes, 2; heart disease, 36; pneumonia, 15; appendicitis, 2; suicide, 5.

RESIDENT PHYSICIANS TO GERMAN HOSPITAL.—As a result of the competitive examination for positions on the resident staff of this Philadelphia hospital, the following named have been appointed: Drs. Frank H. Dye and A. E. Wilcox of the University of Pennsylvania, and Dr. Ferguson of Jefferson Medical College.

STATE HEALTH OFFICER AND MAYOR CROSS SWORDS.—Differences between these officials have arisen over the prevention of pollution of the Schuylkill River and the necessary remedy for its betterment. The mayor is reported as saying that he has no jurisdiction in the matter, and that the State Board of Health should therefore apply the remedy. Twice he has called the attention of the state health officer to his duty, while the latter says he is doing his duty, and refuses to answer the letter of the mayor, while to others in the health department he replies cordially.

BEQUEST TO CHARITY.—By the will of the late William Gallagher the sum of $200 has been devised to St. Joseph's and an equal sum to St. Agnes Hospital. The residuary estate of the deceased will be divided equally between the above-named institutions and several other charitable organizations.

CHANGE IN HOSPITAL STAFF.—Owing to the resignation of Dr. J. G. O'Hara, Dr. H. F. Harbridge has been appointed one of the physicians to St. Mary's Hospital.

WILL SAIL FOR AMSTERDAM.—Dr. J. Montgomery Baldy and Dr. G. Hudson Makuen, delegates from this country to the medical congress which convenes in Amsterdam at an early date will sail on July 28 for the above-named city.

ENTERTAINMENT.—June 24 the Philadelphia Medical Club tendered a reception in honor of Dr. G. W. Guthrie of Wilkesbarre, president of the Medical Society of Pennsylvania.

WARNING TO MEDICAL STUDENTS.—A case which will doubtless elicit considerable interest on the part of the different medical colleges of this city occurred a few days ago. It seems that A. W., a colored woman 37 years of age, suffered from septicemia following a premature birth of a child. The patient had been visited by a senior medical student in one of the medical colleges and he had made an examination although no regular graduate in medicine was present at the time. After seeing the case the student advised that the district physician be called in attendance. The patient, however, was taken to the Philadelphia Hospital where she subsequently died. At the inquest Coroner Dugan took pains to warn the medical student against attending such cases, stating that if it had been in evidence that the woman had died of neglect the attendant would have found himself involved in serious trouble.

Queries and Minor Notes.

MEDICAL PRACTICE.

PAULDING, OHIO, June 20, 1899.

To the Editor:—Will you please to inform me as to whether a physician is required to pass an examination to practice his profession in California, Oregon or Washington? How would the west coast of Oregon be for one who for the last year or two has had slight pulmonary hemorrhage? Practice laws of the several states were published some time ago, but I am unable to find the JOURNAL in which published. Respectfully, C. E. B.

ANSWER:—1. In California the presentation and verification of a satisfactory diploma is required for license. In Oregon and Washington an examination is required in all cases, the laws being nearly identical in the two states.

2. The principal advantage of western Oregon or Washington to one who has pulmonary trouble would probably be in a milder climate than in the northern Atlantic states. The rainy season makes it not so favorable for out-door life as Southern California, which is the resort of consumptives who require a mild seaside climate. Eastern Washington and Oregon have less rain and sunshine and therefore may be naturally considered more favorable in these respects.

3. The medical practice requirements of the different states, as published by the Illinois State Board of Health in its last report, will be found in the JOURNAL for Nov. 12, 1898.

WORKS ON TUMORS.

ATLANTA, GA., June 25, 1899.

To the Editor:—Will you kindly write me which you believe to be the best book available on tumors; one with the best cuts and descriptive text? I want it for microscopic work. Very truly, J. L. C.

ANSWER:—For a general work on tumors, that of Bland Sutton, though

small, is one of the best. It makes no specialty of the microscopic character, in fact the text is rather brief, but it is scientific and modern and what it states is reliable. The cuts also are good. The work of Senn is fuller in the histologic descriptions and might be preferred. Both of these works are, we are informed, now out of print and not easily obtained. Probably the needs would be pretty fully met by some of the recent works on pathology, general and special, that of Zeigler, published in 1898 by William Wood & Co., being as good as any, if not the best.

ROBERTS' LYMPH.

MILAN, MO., July 4, 1899.

To the Editor:—In your last edition of the JOURNAL you state that Dr. Joseph R. Hawley made mistakes in his article on Dr. B. F. Roberts' lymph. The facts are I had Dr. Hawley's article copied by our local printer and the errors were made by him; as I refer to Dr. Hawley's article I find the mistakes you spoke of absent, but I did not find the errors in my copy until I had sent out over fifty. I write this statement in justification of Dr. Hawley, who ought not to be censured for some other person's mistakes. Dr. B. F. Roberts is my cousin. Very truly,

I. M. ROBERTS.

WHO KNOWS?

CLIFTON HEIGHTS, PA., July 1, 1899.

To the Editor:—A physician of my acquaintance told me recently that he had noticed in some of the medical journals an account of a wonderful spring in Wisconsin, for the cure of diabetes, but he was unable to remember where he had seen the article. Can you give me any information on the subject? Yours very truly, C. W.

ANSWER:—We know of no such spring. Possibly some of our readers can furnish the information.

The Public Service.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., to and including June 29, 1899:

Daniel M. Appel, major and surgeon, U.S.A., leave of absence granted, to take effect on the closing of the general hospital at Savannah, Ga.

Henry A. Barnhardt, acting asst.-surgeon, from Camp Meade, Middletown, Pa., to accompany 19th U. S. Infantry to Manila, P. I.

Allen J. Black, acting asst.-surgeon, revocation of orders directing him to accompany Co. B, Batt. of Engineers, to San Francisco, Cal.

Charles C. Byrne, colonel and asst. surgeon-general, U. S. A., member of a retiring board to meet at Governor's Island, N. Y.

Hymen M. Cohen, acting asst.-surgeon, now at Willets' Point, N.Y., to accompany Co. B, Batt. of Engineers, to San Francisco, Cal., and there to report for duty in the Dept. of California.

W. H. Forwood, colonel and asst. surgeon-general, U. S. A., member of a retiring board convened in San Francisco, Cal.

Robert J. Gibson, major and surgeon, U. S. A., member of a retiring board convened in San Francisco, Cal.

James M. Kennedy, captain and asst.-surgeon, U. S. A., former orders amended so as to require him to report to the commanding general, Department of California, for duty.

James P. Kimball, major and surgeon, U. S. A., member of a retiring board to meet at Governor's Island, N. Y.

Timothy Leary, acting asst.-surgeon, from the Department of Porto Rico to the Department of Santiago.

George W. Pattison, acting asst.-surgeon, from Camp Meade, Middletown, Pa., to Buffalo, N. Y., for annulment of contract.

Paul Shillock, captain and asst.-surgeon, U. S. A., relieved from duty at Fort Grant, Ariz., at once to report for temporary duty in the Department of California.

Dwight B. Taylor, acting asst.-surgeon, sick leave granted from the Division of Cuba is extended.

Roy A. Wilson, acting asst.-surgeon, from Camp Meade, Middletown, Pa., to post duty at Willet's Point, N. Y.

Movements of Navy Medical Officers.—Changes in the medical corps of the U. S. Navy for the week ending July 1, 1899:

Asst.-Surgeon W. L. Bell, detached from the naval hospital, Mare Island, Cal., and ordered to the "Philadelphia."

Asst.-Surgeon H. E. Odell, detached from the "Philadelphia" and ordered to the naval hospital, Mare Island, Cal.

Asst.-Surgeon F. M. Bogan, ordered to additional duty at the Boston navy yard.

P. A. Surgeon R. G. Brodrick, ordered to Washinton, D. C., July 6, for examination for retirement, and then home and to wait orders.

P. A. Surgeon J. C. Rosenbleuth, detached from the "Buffalo," when put out of commission, and ordered to the "Vermont" immediately.

Marine-Hospital Changes.—Official List of Changes of Station, and Duties of Commissioned and Non-Commissioned Officers of the U.S. Marine-Hospital Service, for the seven days ended June 29, 1899.

Surgeon A. W. Sawtelle, detailed as inspector of relief stations of the third and fourth class.

P. A. Surgeon R. M. Woodward, upon being relieved by P. A. Surgeon A. R. Thomas, to proceed to Washington, D. C., for assignment to duty.

P. A. Surgeon A. R. Thomas, upon being relieved by P. A. Surgeon G. T. Vaughan, to proceed to Reedy Island Quarantine Station and assume command of the service.

Acting Asst.-Surgeon E. B. Hallet, granted leave of absence for two days from July 4, 1899.

Acting Asst.-Surgeon W. S. Walkley, granted leave of absence for three days from June 28, 1899.

Sanitary Inspector W. F. Brunner, granted leave of absence for three days from June 28, 1899.

Sanitary Inspector J. C. Rodman, granted leave of absence for seven days from June 27, 1899.

Hospital Steward E. J. Thurston, to proceed to New York City for special temporary duty.

PROMOTION.

P. A. Surgeon W. J. Pettus, commissioned as surgeon.

APPOINTMENT.

Frederick Townsend, of Michigan, to be acting asst.-surgeon, U. S. Marine-Hospital Service, for duty at Sault Ste. Marie, Mich.

Health Reports.—The following cases of smallpox, yellow fever, cholera, plague and leprosy, have been reported to the Surgeon-General of the U. S. Marine-Hospital Service, during the week ended July 1, 1899:

SMALLPOX—UNITED STATES.

Indiana: Evansville, June 10 to 17, 1 case.
Kansas: Kansas City, June 16 to 23, 2 cases.
Louisiana: New Orleans, June 10 to 17, 1 case.
Massachusetts: Boston, June 24, 2 cases; Fall River, June 21, total to date, 34 cases.
Minnesota: Appleton, June 16, to date 12 cases; Worthington, June 16, 5 cases.
Missouri: Parmington, June 19, reported; St. Joseph, Oct. 26 to Apr. 19, 56 cases, 1 death; St. Louis, June 19, 9 cases.
Nebraska: Omaha, June 10 to 17, 2 cases.
New York: New York, June 17 to 24, 2 deaths.
Pennsylvania: Philadelphia, June 24, 2 cases; Pittsburg, June 10 to 17, 1 case.
Porto Rico: Ponce, June 10, 1 case.
Ohio: Cleveland, June 3 to 17, 13 cases, 1 death; Columbus, June 16 to 23, 1 case; Massillon, June 17, 1 case.
South Carolina: Greenville, June 10 to 17, 1 case.
Virginia: Newport News, to June 24, 583 cases, 14 deaths; Norfolk, to June 22, 822 cases, 14 deaths; Portsmouth, to June 22, 344 cases, 5 deaths.
Washington: Spokane, June 17, 4 cases, 5 deaths.

SMALLPOX—FOREIGN.

Belgium: Antwerp, June 3 to 10, 3 cases, 1 death.
Brazil: Rio de Janeiro, May 5 to 19, 60 cases, 20 deaths.
Cuba: Nuevitas, June 16, 1 case.
Egypt: Cairo, May 22 to June 3, 4 deaths.
England: London, June 3 to 10, 1 case, 1 death.
Greece: Athens, June 3 to 10, 18 cases, 7 deaths.
India: Bombay, May 23 to 30, 9 deaths; Madras, May 13 to 26, 3 deaths.
Russia: Moscow, May 27 to June 3, 34 cases, 7 deaths; Odessa, June 3 to 10, 6 cases, 3 deaths; St. Petersburg, May 27 to June 3, 25 cases, 5 deaths; Warsaw, May 27 to June 3, 1 death.
Scotland: Glasgow, June 3 to 10, 1 case.
Turkey: Smyrna, June 3 to 10, 1 death.

YELLOW FEVER.

Brazil: Rio de Janeiro, May 6 to 19, 34 cases, 17 deaths.
Cuba: Havana, June 8 to 15, 1 death.
Matanzas: Matanzas, June 20, 1 case; Santiago, from outbreak to June 30, 35 cases, 11 deaths. All but 4 were among troops.
Mexico: Tampico, June 3 to 9, 2 cases; Vera Cruz, June 8 to 22, 79 deaths.

CHOLERA.

India: Bombay, May 23 to 30, 2 deaths; Madras, May 20 to 27, 5 deaths.

PLAGUE.

India: Bombay, May 23 to 30, 124 deaths; Madras, May 20 to 26, 1 death.
Persia: Bunshir, June 3, 1 case.

LEPROSY.

Texas: Eagle Pass, June 30, 1 case.

CHANGE OF ADDRESS.

Case, G. B., from 114 Euclid Av. to Colonial Arcade, Cleveland, Ohio.
Clark, C. G., from Ann Arbor, Mich., to Pittsfield, Mass.
Carlton, E. P., from Chicago to 1019 University Av., Madison, Wis.
Chase, C. L., from Louisville, Ky., Middlebury, Ind.
Campbell, T. F., from Benkelman to Elwood, Neb.
Foerster, O. H., from Milwaukee, Wis., to 3604 Walnut, Philadelphia, Pa.
Fanning, G. J., from New Orleans to Philipsburg, Mont.
Hadley, E., from 236 N. Penn to Willoughby Blk., Indianapolis, Ind.
Horton, R. W., from Galveston to Waxahachie, Texas.
Harris, J. G., from 911 Washington Av. to 918 S. 12th St., Philadelphia.
Harris, R. A., from Chicago to Redlands, Cal.
Hartshon, W. E., from Minneapolis, Minn., to Box 1087, New Haven, Conn.
Kurtz, T. J., from Chicago, to 313 West Court, Flint, Mich.
Kuhn, B. F., from Chicago to North Webster, Ind.
Layne, E. R., Healdsburg to Danville, Cal.
Lawrence, A. A., from Millville to Malden, Mass.
Mogk, W. A., from Ann Arbor to 546 Second Av., Detroit, Mich.
McSwain, D. L., from De Funiat Springs to Nocatee, Fla.
Nottage, H. P., Providence, R. I., to Goshen, Mass.
Nauman, B. J., from Mendota to Peru, Ill.
Purdue, F., from Swinton, Mo., to Alto Pass, Ill.
Piper, E. D., from Chicago to Waukegan, Ill.
Pittman, J. H., from Nashville, Tenn., to High Springs, Fla.
Richmond, C. B., from 711 17th St. to 1737 Melton St., Denver, Colo.
Roop, J. W., from Montrose to Snyder, Ark.
Sherman, C. F., from 1956 to 1556 N. Halsted St., Chicago.
Smith, J. T., from 280 State to 69 Washington, Chicago.
Snively, I., from 2501 Oxford to 1617 N. Broad, Philadelphia, Pa.
Strong, A. B., from 319 W. Indiana to 533 W. Monroe, Chicago.
Soule, C. E., from Morris to Sheridan, Ill.
Tenney, L. P., from Crockett to Archer City, Texas.
Woods, J. G., from Louisville, Ky., to Meersburg, La.
Weld, W. H., from Deadwood, S. D., to Fort Atkinson, Wis.